MONTHLY INTERNATIONAL FEATURE ISSUE

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The OIL WEEKLY

FOR THE DRILLING, PRODUCING, PIPE LINE INDUSTRY

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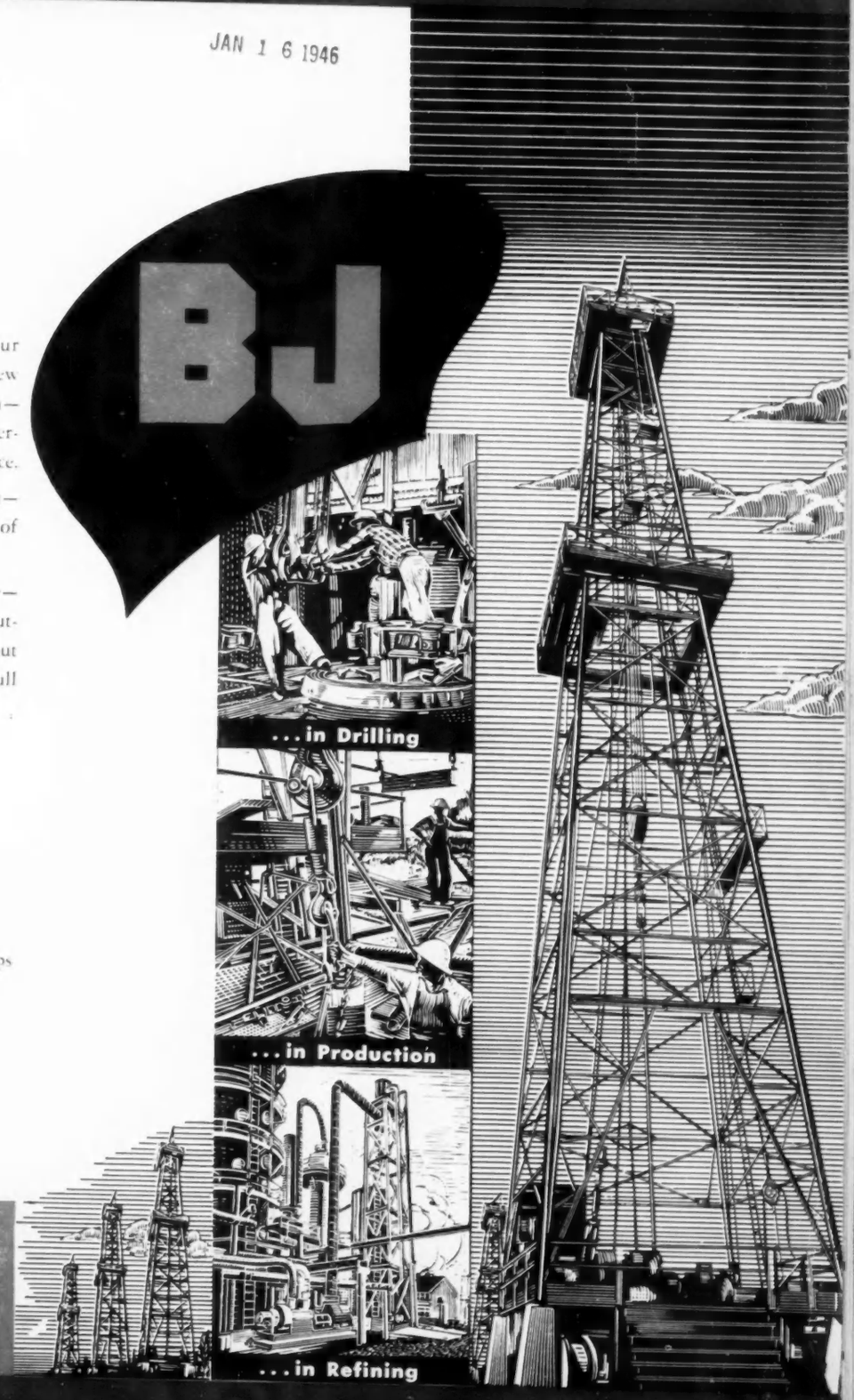

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January 7, 1946

VOLUME 103, NUMBER 6

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The OIL WEEKLY and The COMPOSITE CATALOG for the drilling-producing-pipeline industry

PETROLEUM REFINER and The REFINERY CATALOG for the refining-natural gasoline industry

LOOKING AHEAD
. . . with the Editor

THE OIL WEEKLY'S efforts to present an exact picture of South American petroleum affairs can be measured in part by the mileage which has been turned up under the heels of just one of several correspondents.

J. Elmer Thomas

We refer to J. Elmer Thomas, Texas geologist, who for the past three months has been examining the complex workings of the South American oil industry, together with its bedmate, politics. Thomas, now in Rio de Janeiro, has already traveled 18,000 miles, interviewing petroleum and political personages, recording the feats of oil explorers from the mountains of Ecuador to the pampas of the Argentine.

This issue contains his stories on Chile, Bolivia and Ecuador, subsequent monthly international feature sections will offer his descriptions of the industry in Peru and Argentina, together with other articles.

Thomas is singularly well equipped for the task he is performing, for in addition to his many years of association with the petroleum industry, he has held various government positions and is the author of numerous publications on petroleum economics.

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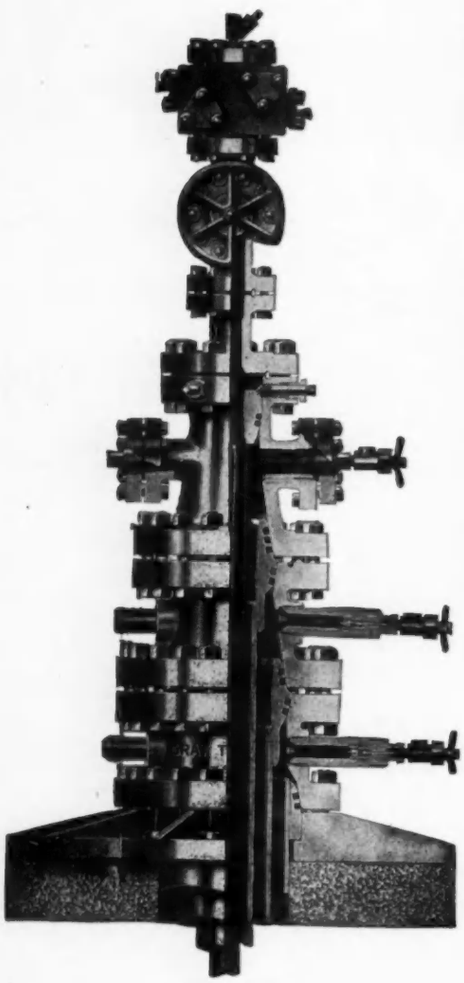

FIGURE 1A

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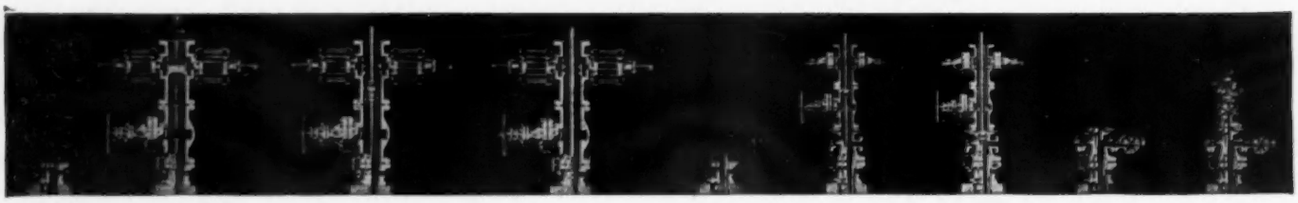


Casing Head Attached | Drilling | Running Casing | Casing Landed | Drilling Control Equipment Removed | Drilling-in and Running Tubing | Tubing Landed | Control Equipment Removed | Manifold Attached

The Outlook

An international committee to continue the control of the distribution of world supplies of rubber exercised during the war by the Combined Raw Materials Board which was dissolved December 31 will be set up to carry through until natural rubber production is restored to normal levels. In addition to the United States, Canada and Britain, which comprised the original board, however, the committee also will have representatives from other countries which have funds which would permit them to compete in the purchase of supplies and thus "upset the apple cart" unless given a voice in the making of allocations.

* * * *

A definite show-down between the President and Congress may come shortly after the 1946 session opens next week. President Truman has gone to the country with some phases of his program that have not met with congressional favor. His chances of getting the whip hand over the legislators has improved because the coalition of southern Democrats and Republicans which was strong enough to swing many issues is beginning to fray at the edges.

* * * *

PAW will lock its doors and throw away the key about the end of February. It will be embalmed in the Archives of the Nation in a history now being written, expected to run maybe as long as 400,000 words and relating in detail not only the successes of the agency but also its few failures and its many difficulties.

* * * *

A stiff fight will be precipitated some two weeks hence when objectors to the Anglo-American petroleum agreement get their day before the Senate Foreign Relations Committee. Objectors charge that the pact is a cartel agreement, but influential members of Congress declare it to be nothing more than an innocuous statement of principles which can hurt no one and even might prove of some benefit in now indiscernible ways.

* * * *

The first census of industry, including petroleum, to be taken since before the war will cover national activity in 1946, but it will be late in 1947, at the earliest, before any industry learns how its first postwar year compared with its last prewar period and what changes in trends, demands, etc., were brought about by the war.

* * * *

State Department officials are closely watching Russian maneuvers to get a foothold in the oil resources of Iran. A big question is whether United States interests will be adversely affected if the Soviet confines its ambitions, as it appears to be at the moment, to northern Iran. The situation has more complications than would affect oil alone - it is one of many steps taken by Russia to extend her sphere of influence to all countries around her far-flung borders.

* * * *

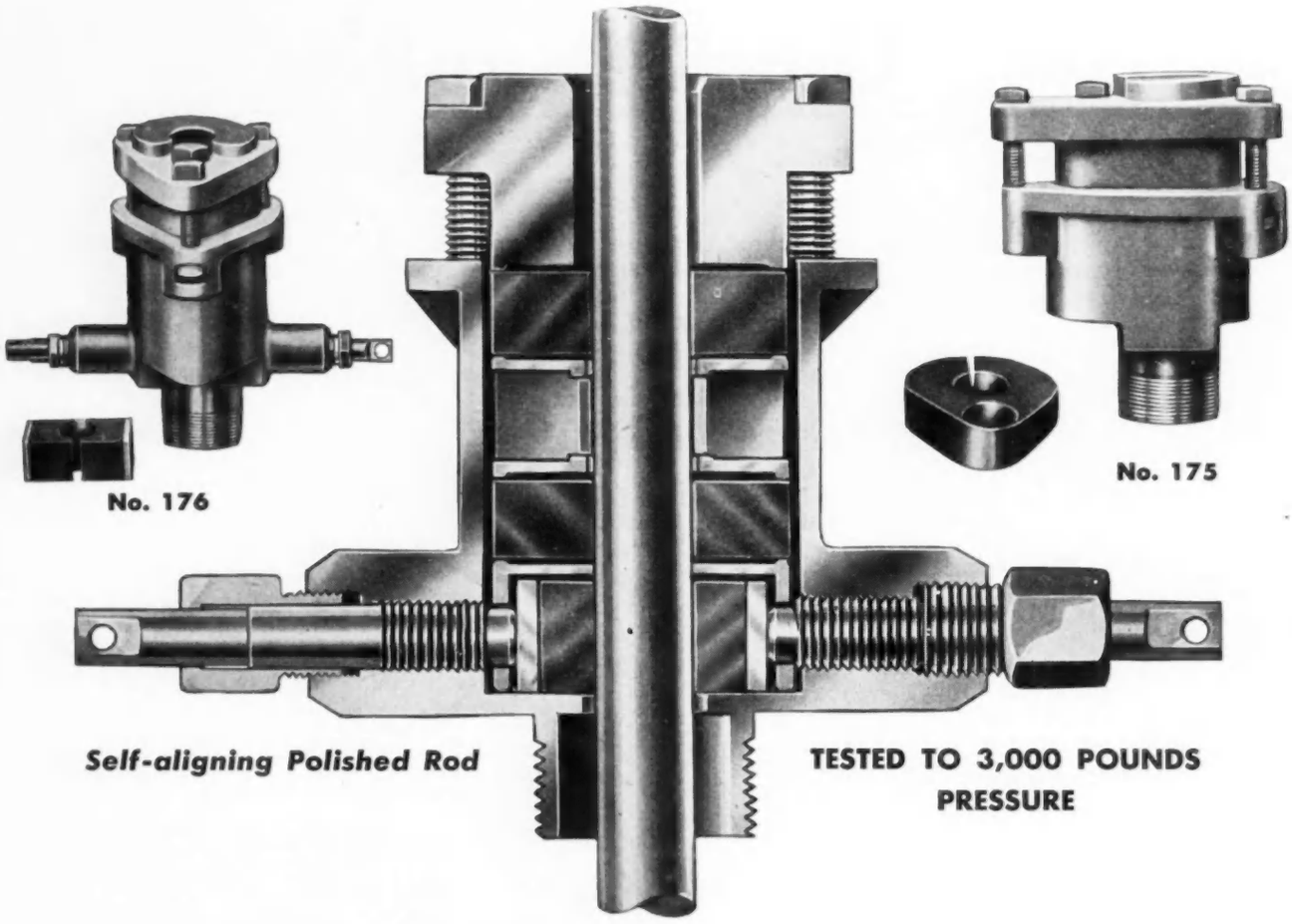
Sample of things to come: Approximately 1500 radial diesel engines originally designed for aircraft use and manufactured during the war to power army tanks, but usable in oil well drilling operations, have been declared surplus by the Reconstruction Finance Corporation.

* * * *

Plans to go ahead with highway construction under the terms of the postwar federal highway aid law enacted last year, have encountered opposition in several states because of the inflationary level of highway building costs.

* * * *

Night landings by airplane pilots will be made safer by a simple indicator just announced. If the plane approaches the landing strip from too steep an angle, he sees an amber beam projecting from the indicator located on the near end of the field. If he is too low, a red beam warns him away. The go-ahead signal is a beam of green light, sandwiched between the amber and red, that the pilot simply follows in until his wheels touch the ground.



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The Ratigan No. 175 and No. 176 Stuffing Boxes are the only boxes receiving their lubrication directly from the pumping well—one of the most important improvements in devices of this type. Each box is thoroughly tested to 3,000 pounds pressure before leaving our plant.

Both types of Ratigan Stuffing Boxes (No. 175 and No. 176) are identically the same in design and operation except that the No. 176 has a special shut-off feature, making it possible to shut off while repacking the box. This is accomplished by tightening the screws evenly in the shut-off; but care must be exercised, as the screws must be loosened again before the well starts to pump or the fluid will not get up into the stuffing box.

When the screws are not tight against the rubber, the stuffing box is free to function properly. For a further check on the fluid coming up through the bypass, the pumper may loosen the plug in the cap a little, and if the bypass is free the oil will flow immediately. If the oil does not come through, the screws in the shut-off are too tight.

The inside of the box of both types is removable, so that the device has two oil chambers. Another arrangement inside the body keeps both chambers filled with fluid from the well, thus providing continuous self-lubrication without depending on the human element—an important development in stuffing box performance.

The hole in the rubber is the size of the polished rod, while the hole in the metal parts of the body is larger, making the rod self aligning—another important feature.

When repacking Ratigan Stuffing Boxes, both rubbers must be removed. Instructions for installing are supplied to oil companies and supply stores on request, and are attached to all foreign shipments. When ordering, specify size and type of thread, and size of polished rod.

All Ratigan products are illustrated and described on pages 2507 to 2526 of the 1943-44 Composite Catalog

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The Changing Panorama

Shifting Values Of Property Rights

VERY gradual changing of a course frequently leads, through almost imperceptible mutations, into a complete reversal. Public opinion often moves in this way, veering ever so slightly yet consistently in one direction over a period of time, until what once seemed sacrosanct becomes negligible at another.

It is rather startling to examine the status of property rights today, compared with that of the fairly recent past. Less than two centuries ago highwaymen were hanged, theft meant amputations or death, and debtors stayed in prison. Today's punishments are milder, often no more than token punishments. Whether this be cause or effect, the sanctity of property ownership has surely diminished.

An example is the reaction of the press to General McArthur's land reforms. When he ordered the Japanese government to take steps to enable tenant farmers to buy their own tiny properties; the action was considered a great forward step in the creation of a democracy, a liberation of the slaves. Non-operating owners are to be paid "at equitable rates" but, since the purchase price is based upon annual installments *commensurate with the tenant's income*, a microscopic sum at best, the seller may have to wait a long time for his money.

How does this arbitrary reshuffling of legal rights differ from the end result of the Russian revolution? The thin legal fiction of payment to the owner may be enough to make the action palatable to us, but in practical terms it is the Russian seizure of property all over again. It is not intended to argue the case for Japan's feudal system, but rather to point out how far we have changed course in the last few years. What we condone abroad becomes more likely at home: what we do to Japan becomes a future threat to property owners in this country.

Forced sale (at a price virtually set by the user of the force) became legal under the Public Utility Holding Company Act of 1935, though for only a special type of property ownership. Now Japan has forced sale of land, once the most jealously guarded type of property, at a price the victorious occupying force considers equitable, on terms that seem necessarily ruinous to the seller.

Things of this sort may undermine the structure of private enterprise, if they are not evaluated in time.

Tribute

AS A tribute from the industry he served so long and so ably, a memorial brochure to the late Judge J. C. Hunter has been prepared by the Texas Mid-Continent Oil & Gas Association. The tribute is richly deserved.

In reviewing the many years in which large numbers of oil men have unselfishly served their fellows in the oil industry, we can recall the name of no one who has made a more substantial contribution than Judge Hunter. He contributed through unremitting work, through sound counsel, through brilliant thinking. When Judge Hunter arose to speak at a director's meeting of the association he had instant attention because what he had to say was founded in good common sense and colored with the humanity of a genuine lover of mankind. He was a fighter for what he believed to be his rights, but his fight was always based on fairness and tolerance.

He shall be missed as few men have been missed in this industry.

Relation Between Oil and Highways

THE direct relation between the oil industry and the highway and road system of the United States is not always realized. George R. Christie, newly-elected president of The Asphalt Institute emphasized one phase of the relationship recently when he cited the probable asphalt requirements for 1946. To make up for delayed maintenance of road surfaces on the 430,000 miles of paved highways in the nation, at least 6 million tons of petroleum asphalt will be needed, next year alone.

In addition to maintenance, it was also noted that 2 million tons of the same product may be used on new road and street construction in the program made possible by the recently approved Federal Aid appropriation of $500 million, to be matched equally by the States.

Another Contribution To Human Progress

THE petroleum industry, which has served for the past six years to fuel a world war, is once again taking its place as an important contributor toward technical advancement and a people's welfare.

Responding to the widespread desire of scientists fighting metabolic diseases, Sun Oil Company and Houdry Process Corporation have announced plans for construction of two plants to produce in comparatively substantial quantities Carbon 13, a rare material found to have great value in biochemical research work.

Revealing research work and experiments conducted during the last two years with this heavy carbon isotope, Arthur E. Pew, Jr., vice president of Sun, and Eugene J. Houdry and Arthur V. Danner, president and executive vice president respectively of Houdry, in a joint statement announced work on the two plants would go forward at once.

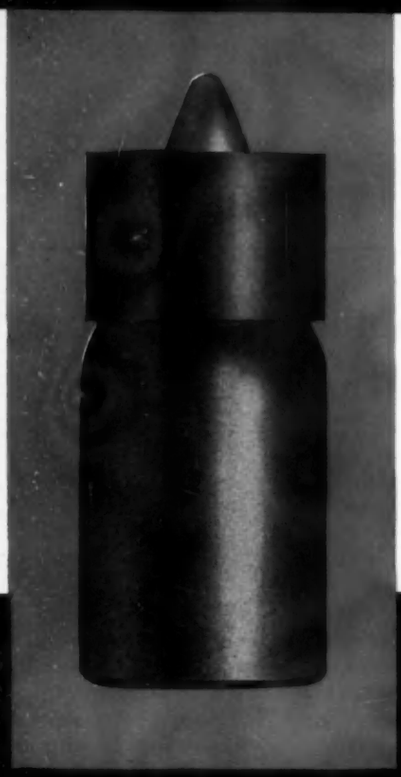
They stated world supplies of Carbon 13 would be increased from 500 to 1000 times as a result of their program. Their statement explained that Carbon 13, used in biochemical research as a "tracer," gives promise of "ranking in importance with X-ray as a tool of medical science."

This rare carbon is used to probe the secrets of metabolic disease processes, such as cancer, diabetes, hardening of the arteries and heart trouble. Particular efforts are now under way with Carbon 13 to discover the cause of cancer.

The Houdry experiments started with less than one-half gram of Carbon 13 which cost several thousand dollars to concentrate. The material produced by the Houdry plant costs in the neighborhood of $400 a gram. It is hoped construction of the new plants, the larger one at Sun Oil Company's Marcus Hook refinery, will bring the cost down to about $40 a gram.

Conservative estimates made recently by the most competent authorities reveal that there are sufficient natural gas reserves now to last for some 50 years. In the light of developments, any effort to convince the FPC that natural gas markets should be restricted in any way would appear foolish.

——— Director, Independent Natural Gas Association of America.



Another SCHLUMBERGER first . . .

"NO-BURR"

Gun Perforating Bullets

This un-retouched photograph of a specimen of perforated casing graphically demonstrates the performance of the new Schlumberger "NO-BURR" perforating bullet. Note how the "NO-BURR" perforations — in contrast to the ordinary bullet hole — leave no harmful burrs on the inner wall to damage packers, testing tools, or other bottom hole equipment.

The "NO-BURR" bullet is illustrated above. It consists of a standard Schlumberger bullet over the nose of which is fitted a soft metal cap. It travels with the bullet and contacts the wall of the casing to prevent the formation of a burr.

Thus, the Schlumberger policy of continuous research to improve its services has again resulted in a noteworthy achievement. "NO-BURR" bullets will replace the ordinary bullets on all future Schlumberger gun perforating operations.

SCHLUMBERGER WELL SURVEYING CORPORATION

HOUSTON, TEXAS

The Week's News

OIL last week in Washington figured mostly in things to come, with the refinery-wage panel due to meet January 7 after a long recess during which it was hoped the companies and the union could come to agreement on the latter's demand for a 30 percent wage increase.

Hearings Appear Deferred—Also in the future, but rendered indefinite by new developments, were the Senate Foreign Relations Committee hearing on the Anglo-American petroleum agreement and the Senate Judiciary Committee on the tidelands legislation, the first deferred because of the absence from Washington of Chairman Tom Connally and the latter reportedly held up to permit the Supreme Court to decide the issue. Story below.

Bureau's Forecast Shows Decline—January crude production estimates of the Bureau of Mines call for a reduction of only 42,000 barrels daily from the December forecast, due to fuel oil and kerosine shortages on the East Coast. New difficulties are developing on the Pacific Coast, too, where the demand for Navy fuel oil has been raised above expectations, resulting in a necessity to haul oil from Texas by rail. Page 15.

FPC and End Use of Gas—The Federal Power Commission appears to be in for a finish fight over its effort to pass on the end use of natural gas. Adding to its worries is uncertainty over its future, the FPC not having been exempted from the reorganization authority recently granted President Truman by Congress, raising the possibility of its transfer to the Interior Department, which long has been wishful of its investigatory authority in the fields of water power and electricity as well as gas. Page 14.

Chile Gets Production—Commercial production is reported in a Magellan Straits wildcat, near the southern tip of South America. Story below.

New Tax in Venezuela—An excess profits tax, just announced in Venezuela, will hit most oil companies for 20 percent during 1946. Story below.

Strikes at OPA—J. Howard Pew, president of Sun Oil Company, strikes at OPA in a year-end statement, urges its abolishment.

Congress to Convene—Congress will return to Washington next week to take up a heavy schedule and much application will be needed if it adjourns July 1 for the summer, as proposed. Labor matters will be uppermost, as the President indicated in his radio address last week.

Pipe Line Disposal—Sale, lease or government-disposal of the Big Inch lines, in the order named, are recommended by SPA's report to Congress. Page 12.

Commercial Production Is Reported In Chile's Magellan Straits Wildcat

First commercial production of oil for Chile seems assured on the basis of early reports from a wildcat being drilled by Corporation de Fomento de la Produccion in the extreme southern portion of the country near the Straits of Magellan. Corporation de Fomentos' Spring Hill 1 has reported an impressive showing of oil on a drill-stem test made after going 10 feet into a sand found at 7428 feet. The well was going ahead at latest reports and will probably not be completed for some time.

The well, located on the island of Tierra Del Fuego, 6 miles from the north end of the Straits of Magellan, is on a structure discovered by geophysical methods, the exploratory work having been supervised by Larry Morris of United Geophysical Company S.A. Discovery of commercial oil in this area would be of great value to the Chilean government both from the standpoint of domestic use and the geographical position which would make it possible to send the oil into worldwide commerce via either the Atlantic or Pacific oceans.

With the J. K. Livermore Corporation, Inc., of Lubbock, Texas, as contractors for drilling, the well is the first of a proposed number of wildcat tests scheduled to be drilled by the Chilean government through its Corporation de Fomento as part of its aggressive program of testing thoroughly the petroleum possibilities of the Magellans region. The program got under way four years ago when Glen M. Ruby, vice president of United Engineering Company started geological work in the area and he has continued as general technical consultant.

Editor's Note—The Chilean situation is discussed rather fully in this issue commencing on page 24 of the International Section. Also see map, page 26, of the International Section for location of the Spring Hill well.

Kerosine Restrictions

Shortages in the United States were last week reflected in an order of the office of international trade operations of the Department of Commerce, requiring licenses for all exports of kerosine, except distillates but including burning oils, mineral colza, petrolite and signal oil.

Oil Pact and Tidelands Hearings May Be Deferred

Two oil hearings scheduled for the next six weeks are expected to be deferred when Congress meets January 14.

Hearings before the Senate Foreign Relations Committee on the Anglo-American petroleum agreement, scheduled originally for January 16 and then deferred until January 21, are expected to be called off because of the absence from Washington of Chairman Tom Connally of Texas, one of the American delegates to the United Nations Organization meeting in London.

Hearings on the tidelands legislation which were set to open February 5 before the Senate Judiciary Committee also are expected to be deferred, probably for an indefinite period because of the government's suit pending in the Supreme Court.

Venezuelan Rule Hits Oil Industry

Although the new Venezuelan government has thus far respected the contracts now in force with the various oil companies regarding concession provisions and royalties, a new decree just issued by Provisional President Romulo Betancourt apparently will materially increase the country's revenue from the oil industry along with that from other industries.

Applying to 1946 only, the decree imposes an excess profits tax of from 6 to 20 percent on all corporations and individuals whose profits for the year exceed $225,000. The sliding scale designated will almost automatically place most of the country's oil producers and refiners in the 20 percent bracket.

According to information reaching New York from Caracas, the tax decree calls for a levy of 6 percent on profits from $225,000 to $280,000; 10 percent on profits up to $400,000; 15 percent up to $560,000; and 20 percent for all above $560,000.

In the absence of complete details regarding the method of figuring excess profits—whether or not relationship between capital investment and profit is taken into consideration, and other factors—it is not yet possible to estimate to what extent corporations and individuals will be affected but there is little doubt expressed that it will be considerable.

Sale, Lease and Government Operation Of Big Inches Lines Discussed by SPA

Sale, lease or government-operation of the Big Inch pipe lines, in the order named, were recommended to Congress January 4 by the Surplus Property Administration, with their conversion to natural gas use favored only if the lines cannot be kept in petroleum service and the national security is "otherwise adequately protected."

The report was submitted in conformity with the Surplus Property Act, which requires the SPA to recommend disposal programs to Congress on various classes of surplus property.

Only the Big Inch lines offer any problem, the agency said, the four smaller lines having a "reasonable prospect" of some economic use. Sale of these properties for use in peace, it was reported, is "in accordance with the objectives of the Surplus Property Act which pertain to the fostering of new independent enterprise and the creation of employment," and is preferable to their costly removal or disposal for their low value as scrap.

"With respect to the Big and Little Big Inch," Congress was told, however, "the many conflicting views and the potential impact of peacetime use of these facilities on various established industries make it exceedingly difficult to formulate a policy which is distinctly in the public interest and at the same time fair to the private groups involved."

The recommendation that the lines be disposed of to continue as oil carriers, either to the Eastern Seaboard or to interior points, it was emphasized, "would be in keeping with the expressed desire of the Army-Navy Petroleum Board that the lines be readily available for petroleum service in the event of another emergency. They would also preclude the undesirable alternative of holding the lines in standby."

Private Operation Preferred

In line with the objectives of the act, disposal to private interests will be given preference over any form of government financing, ownership or control. However, it was emphasized, the terms of sale must include a provision that the properties are not to be resold, or basically altered in any way that would materially affect or destroy their military value, and it must also be provided that they are to be operated as true common carriers of oil or products at rates based on the cost of service plus a reasonable return on investment, 'and reasonable tariff requirements as to minimum tenders, originating and terminals storage and other regulations affecting non-owning shippers must be assured.

In this connection, the SPA commented that "it has been frequently charged that, their common-carrier status notwithstanding, pipe line subsidiaries of major oil companies have deliberately excluded non-owners from the use of these facilities by means of excessive rates, high minimum tender requirements and other practices in furtherance of monopoly in the petroleum industry by elimination of the smaller independent operator" and that "practically every charge that has been made against major oil companies alleging illegal or irregular practices in pipe line operation is contained in a suit filed by the Department of Justice against the American Petroleum Institute on September 30, 1940."

"In view of the seriousness of these charges and the widespread public interest in making pipe lines true common carriers equally available to all, extreme care must be exercised in disposing of government-owned lines," the SPA declared. "If sold to private interests for use in transportation of petroleum, preference must be given to prospective purchasers who, by the nature of their interest and connections, would be most likely to operate them as true common carriers, or else such provision should be included in the terms of sale."

The report explained that all segments of the petroleum industry will be given the opportunity of acquiring the lines.

"Special effort will be made to give the many small and independent operators, who by themselves cannot acquire the properties the opportunity of participating in a joint venture which would be of mutual benefit to all," it was stated. "This might be accomplished by the creation of a corporation, the shares of which would be held by various individuals, cooperatives or associations.

Lease Possibilities

"Should it prove impossible to sell the lines to the petroleum industry, either because the major companies are not interested or the small or independent operators cannot act effectively, consideration will be given to the possibilities of lease. Several individuals and companies have inquired as to expected policy on leasing, some suggesting that this is the one way in which they could determine the postwar economic potential of the lines. A lease for this purpose might well lead to subsequent sale.

"Numerous groups and firms which have no intention of acquiring the properties have expressed interest in using the lines should they continue in operation. A few have even committed themselves, as to the estimated magnitude of their shipments. In view of this active interest in common-carrier pipeline transportation, public operation on a full-cost basis may have to be considered if all efforts to dispose of the lines to private industry should fail. As a last resort, this would preclude the necessity of holding the lines in standby, and would make low-cost, dependable transportation available to all. Such action would not be taken, however, without the express approval of Congress."

As reported in THE OIL WEEKLY, December 31, the SPA does not accept the conclusions of Ford, Bacon and Davis, New York engineers who made a study of the Big Inch lines for Defense Plant Corporation, that the only economic peacetime use to which they could be put was in the transportation of natural gas (THE OIL WEEKLY, December 24) and told Congress that such conversion would be favored only if it proves impossible to keep the lines in petroleum service.

Conversion to gas, it was asserted, might entail serious disruption to eastern coal, railroad and other industries, and will be considered only if no other use of the lines is possible and then only if the national security appears to be otherwise adequately protected.

Discusses Engineer's Report

"The Big Inch and Little Big Inch were especially designed for petroleum service," it was pointed out. "During the emergency, they performed beyond all expectation. They have a demonstrable economy and efficiency in comparison with any other postwar means of petroleum transportation. They should, therefore, have more value in this service than for any other purpose.

"Conversion to natural gas is economically feasible and possible from an engineering standpoint. However, since many of the existing facilities would be without value and much additional investment would be required, disposal for this purpose would appear desirable only if disposal for petroleum proves impossible.

"The findings of the Army-Navy Petroleum Board, which are assumed to apply principally if not exclusively to the Big Inch and Little Big Inch, that government-owned pipe lines would be vitally necessary in case of another national emergency, make it imperative that these lines be retained or disposed of in a way that we insure their ready availability for Gulf to East Coast petroleum service.

"Retention in standby is generally conceded to be unjustifiably expensive

Important

The paper shortage is still acute. Legal restrictions have been lifted to permit a publisher to use as much paper as he can buy. But try and get it!

Consequently we are printing a very limited number of extra copies of the 1946 Yearbook-Forecast Number of The OIL WEEKLY, to be published February 11.

Every effort should be made right away to ascertain your requirements for extra copies and to get this information to us before February 1 to enable us to compute our print order and locate the necessary amount of paper.

Your immediate attention to this will forestall possible disappointment after the Yearbook-Forecast Number is off the presses. Extra copies—$1 each.

and would not prevent deterioration of the properties. Moreover, it would constitute needless economic waste because of the potential usefulness of these facilities for a productive purpose."

Pointing out that the lines embody most of the recent features of pipe line engineering, operation and design, the SPA contends that "from the purely economic standpoint of comparative costs there appears to be no reason that the Big Inch should not continue in the service for which it was built in competition with tankers or any other form of transportation; to the contrary, many estimates and all available data give it a cost advantage." The same is largely true of the Little Big Inch, although it is in a less strong position in relation to tankers; conversion to diesel power, however, might make it competitive at capacity, it was stated. In their report to the DPC, Ford, Bacon and Davis held that the lines could not compete with tankers. But the SPA maintained that even if operating costs were equal, or somewhat in excess of, comparable tanker costs, the lines would not necessarily be non-competitive.

To the many petroleum shippers who neither own nor have a financial interest in transportation facilities, prevailing rates, and not the cost of operation, constitute the cost of transportation. That rates do not correspond with costs is a well known fact which is reflected in the high return on investment enjoyed by many pipe line companies before the war and by the wide fluctuations in prewar tanker rates," it was argued. Between 1935 and 1939 pipe line rates, which were relatively stable, yielded an average return on investment to companies reporting to the Interstate Commerce Commission ranging from 28 percent in 1935 to 39 percent in the latter year. One company enjoyed a return of more than 90 percent in each of three successive years.

Tanker Rates Fluctuate

"During the same period, monthly average single-voyage tanker rates between the Gulf Coast and East Coast ports, which do not reflect the actual extremes, ranged from 14 to 60 cents per barrel on gasoline and from 14 to 54 cents for the transportation of crude oil. Since tanker rates, like any other transportation charge, cannot be lower than the cost of operation over any substantial period of time, it follows that prewar tanker rates frequently reached levels far above the full cost of service. It also follows that the Big Inch pipe lines, if operated as common carriers, equally available to all at rates based on the cost of service plus a reasonable (7 percent) return on investment, might well be competitive under such conditions. In addition, they would act as stabilizers of excessive rates by other means of transport, thereby permanently reducing the cost of distribution to shippers who do not possess their own facilities, but who, as in most other industries, depend on common carrier transportation."

Both the Big Inch and Little Big Inch would be without equal for the transportation of petroleum to interior points where they would not come into competition with tankers, SPA reported. No overland facilities, including industry-owned pipe lines, have comparable economy or efficiency, according to the report.

The report also emphasized that more than 50 percent of the tankers supplying the East Coast area with crude oil and petroleum products are government-owned, and that had it not been for the willingness of the government to allocate publicly-owned tankers to private use on a charter basis pending availability of tankers for sale, the petroleum industry would not yet have been able to discontinue use of the Big and Little Big Inch pipe lines.

"From a disposal standpoint," the report continued, "the present deficit of privately-owned petroleum transport facilities means that the major oil companies must, if they are to resume their traditional role as owners of transportation facilities, purchase a substantial number of tankers.

"For the Gulf to East Coast service, they have the option of buying the Big or Little Big Inch pipe lines, or acquiring an equivalent number of tankers. Thus it follows that government policy in the disposal of ships, insofar as it affects the sale of tankers, has a vital bearing on the disposal of the two big pipe lines in the petroleum service for which they were designed." Congress now has before it two so called "ship sales bills" which propose a statutory sales price for tankers ranging from 60 to 100 percent of the prewar or normal cost.

Texas Promotions

The Texas Railroad Commission's Oil and Gas Division settled down last week as men who were promoted accepted their new jobs.

Jack Baumel, formerly director of production, became chief engineer at $7750 per year, while Clark Lloyd, formerly chief enforcement officer, is now director of production at $5000 per year.

These keymen had resigned effective January 1, but both stayed on when the commission provided substantial increases in salaries.

Gas Conservation Measure Discussed At Hearing Before Mississippi Board

Governor Bailey of Mississippi could not attend Friday's hearing by the state's Oil and Gas Board for the purpose of discussing the proposed natural gas conservation order, so no action was taken.

In substance the proposed Mississippi order states that when three oil or condensate wells are completed in a field the operators therein shall appear before the board to show why the natural gas so produced should not be utilized for introduction into oil, gas or condensate-bearing horizons to increase reservoir pressure or the ultimate recovery of resources from these horizons; or why the gas should not be used as a lift in the production of oil where such gas is not used in excess of 2000 cubic feet per barrel of oil produced; or for chemical manufacturing or for light, fuel, or heat. The order further provides that where natural gas is produced incident to the production of crude petroleum oil at an efficient ratio the term waste shall not apply.

Elmer Patman of Houston, speaking for the operators, said that usually each field is different and presented a revised order prepared by representatives of the industry. This follows the same general line but is more specific in some instances.

One of the board members observed that the hearing had come about as a result of complaints of waste in the Cranfield field and in implied answer to that charge, Lucius Lamar of The California Company, which has practically all of the production in that field, explained the character of the area and problems faced there.

The pool, covering 10,000 or 12,000 acres, produces primarily from the Tuscaloosa sand and has a gas-oil ratio of 1074 to 1. Around the rim of the reservoir are oil wells which produce casinghead gas, which performs the useful function of lifting oil but Lamar agreed that there might be ways to utilize it further. To this end, as a temporary expedient, the company is laying pipes from its wells to a central point where it will be reinjected into the ground. It also is making plans to construct a cycling plant but Lamar said that such plants are very expensive and that his firm could not go ahead previously until they had first determined the size and type of reservoir with which they were dealing. The temporary expedient of pumps should be completed by March. It is hoped to have the cycling plant completed by the end of the year.

Lamar stated that only two things might hold them up on the cycling plant. One was the question of tax exemption. New industries are permitted some exemption in Mississippi but at present cycling plants are not included. The second condition is that before building can go ahead it is necessary to have agreements from the royalty and property owners in order to unify the operation in the field. These agreements are being sought but if they are not signed unanimously it would be impossible for the plant to function. He suggested that it would greatly expedite the work in Mississippi if the state would pass laws to take care of these two conditions.

Joe T. Goodman, regional manager of Gulf Refining Company, stated that his company is agreeable to any constructive proposal and is working on plans to take care of its own problems.

Transfer of FPC Powers to Interior In Government Reshuffle Seen Likely

Possibilities that reorganization of the federal establishment which President Truman may undertake under authority granted him last month by Congress may transfer many of the functions of the Federal Power Commission to the Interior Department are seen by observers who place considerable weight upon the fact that the commission was not among those agencies specifically exempted from reorganization.

Shift of the commission's investigatory powers in the fields of natural gas, electric power and water power to the department would be in line with Secretary Ickes' ambition to centralize natural resources work in his agency.

A transfer of the FPC's regulatory authority over rates to interior, however, is seen as subject to opposition from the power industry at least because of the fact that Ickes runs power projects which are subject to FPC control.

There are many who believe that the natural gas investigation now being conducted by the commission would be potentially less dangerous to the industry if it were made by the Interior Department, where a great deal of information has been gathered in connection with its oil activities and where it is believed the approach might be more "scientific" than in an agency whose regulatory powers are involved in the results.

President Truman so far has given no indication that he plans to disturb the FPC, but it is pointed out that the agency recently lost one of its best informed officials when Basil Manly resigned to accept a post with one of the natural gas companies, and suffered another loss when its chief counsel recently quit. Reports of a possible shake-up may be wishful thinking on the part of the industries under the FPC, but the President is expected to announce his first steps toward reorganization within the next few weeks and may then disclose what plans, if any, he has for the commission.

Industry Will Fight FPC On End Use of Natural Gas

Efforts of FPC to control the end uses of natural gas have become an issue and a determined fight to delineate the commission's authority in that field is in prospect.

The question was raised when the commission granted Northern Natural Gas Company authority to construct a pipe line and facilities to serve Iowa Electric Light and Power Company, but limited their use and denied Northern permission to sell gas for boiler fuel purposes at Iowa's Boone power plant.

Northern has filed application for a rehearing, asserting that the commission has no authority to control the end use of gas and has no jurisdiction over direct industrial sales, such as was proposed.

Representatives of the natural gas industry say that the FPC ruling is "disturbing" and construe it as a clear effort to attempt to control the end use of gas —an effort which it is contended the commission at least tacitly implied it would not undertake until its current natural gas investigation is concluded.

Chicago Gas Expansion Matters Before the FPC

A one-day hearing in Washington January 8 to hear the opening statements of counsel for the various parties interested in the applications of Natural Gas Pipe Line Company of America, Texoma Natural Gas Company, Chicago District Pipe Line Company and Michigan-Wisconsin Pipe Line Company for a $20 million expansion of facilities in the Chicago area, is planned by the FPC prior to the opening of hearings in Chicago January 14.

At the Chicago hearings, the first matter to be considered will be any emergency situation considered to exist or anticipated during the current winter season which may be alleviated by construction of less than the whole project proposed by Natural, Texoma and Chicago District.

After the Chicago hearings, the commission will move to Detroit to hear the Michigan-Wisconsin application.

TGT Seeking Authority to Build Pipe Lines in Texas

FPC will reopen hearings February 27 on applications of Tennessee Gas and Transmission Company for authority to build 2380 feet of 8-inch pipe line in Harris County, Texas, and 95 miles of 16-inch line from the San Salvador field, Hidalgo County, to a connection with its main transmission line in Nueces County.

With these applications the commission will consolidate requests for authorization to purchase four compressor stations in Mississippi, Tennessee and Kentucky from the Reconstruction Finance Corporation, which it said involve substantially similar issues and facts.

Frank Brown Dies

I. Frank Brown, export representative for a number of oil-field equipment manufacturers, died in New York, on January 4. He had operated an export business for a number of years and had wide acquaintance in the oil industry. He was formerly foreign sales representative for several companies, and was a member of Nomads.

Mene Grande's Santa Rosa Fire Finally Extinguished

Fire has been extinguished in Mene Grande Oil Company's R. G. 6 in Venezuela in the Santa Rosa area of east central. A second charge of explosives did the trick. Workmen are trying to bring the well completely under control, having already placed one valve on the casinghead. Early capping of the well is hoped for.

To the south, and northwest of the Oficina area, Socony-Vacuum Oil Company's Tascabana 1, which appeared to be capable of opening a new gas area, was being tested, with no showing of oil of commercial importance.

Following some weeks delay in overhauling equipment, Socony-Vacuum company is making hole again in its Silvestre 1, its second wildcat in the remote state of Barinas, south of Lake Maracaibo, and is drilling ahead at a depth below 8970 feet.

J. Steve Anderson Sells Holdings to Syndicate

J. Steve Anderson of Anderson-Prichard Oil Corporation, Oklahoma City, has sold his entire stock interest in the corporation to a Chicago syndicate. Terms of the sale and the consideration were not disclosed. Anderson and L. H. Prichard have been associated in business for the past 25 years.

The sale includes the APCO tower, second tallest office building in Oklahoma City; half interest in Anderson-Prichard Refining Company, Anderson-Prichard Pipe Line Company and the financial interest of the company in Col-Tex Refining Company. Anderson-Prichard Oil Corporation has production in Oklahoma, Kansas, Texas, Louisiana and New Mexico. The firm has customers in 38 states and concentrates most of its sales of refined products in the north-central section of the country.

Prichard is continuing as president of the corporation in direct charge of its operations.

Syndicate Buys Producing Properties Near Houston

A deal involving the purchase of 46 oil wells, 5 gas wells and about 1000 acres in the Dyersdale field, near Houston, Harris County, Texas, for an estimated $1,300,000 has been closed between Jack Frazier and Frank Gravis, owners of the property, and W. E. Bakke of San Antonio.

The property is reported to have been purchased by a syndicate and will be operated by Bakke. Frazier sold 21 oil wells and gas located on 500 acres for a reported consideration of $500,000 but retained his undeveloped acreage in the field. Gravis sold 25 oil wells on about 500 acres for $800,000, it was learned from reliable sources.

Slight Drop Noted in Bureau's Crude Production, January Under December

January demand for domestic crude petroleum was placed last week by the Bureau of Mines at 4,500,000 barrels daily, compared with 4,542,000 barrels for December.

As previously indicated (THE OIL WEEKLY, December 24) the published figure disclosed no material change for January production, due to a combination of circumstances developing after a preliminary estimate made for the Texas Railroad Commission.

"The forecast of the demand for domestic crude oil in January has been set at a much higher level than had been originally estimated, due to current trends resulting from the abnormal reduction in refinery operations in September and October and a consequent shortage in fuel oil and kerosine supplies," the bureau explained.

"Unless the total demand for all oils proves to be materially greater in the first quarter than anticipated, a sharp reduction in the demand for crude oil may occur in February and March. The problem of meeting fuel oil requirements without an excessive seasonal increase in gasoline stocks may cause readjustments in yields and a reduction in runs as soon as fuel oil supplies become adequate."

Adjustments Needed

The bureau stated that reductions in refinery operations in the last half of September and the first half of October necessitated material readjustments in anticipated crude demand in November, December and January. Actual runs to stills in September were reduced to 4,275,000 barrels daily and in October to 4,244,000 barrels. On the basis of current figures available, total runs appear to have approximately 4,715,000 barrels daily during November and may average 4,560,000 barrels daily for December.

Available data for the last four months of 1945 indicate that the total demand for all oils will approximate forecasts for that period and amount to about 5 million barrels daily. The net result of refinery operations during that period appears to indicate that some 9 million barrels in runs may have to be made up during the first quarter of 1946, or an equivalent of 100,000 barrels daily.

Output by States

The bureau's estimates of output by states show a 10,000 barrels a day increase for Texas, reductions in 13 other states and no change from December in seven.

Texas production is forecast at 1,950,000 barrels daily against 1,940,000 barrels in December. Reductions are foreseen in California, 832,000 barrels from 850,000 barrels; Oklahoma, 382,000 from 388,000; Kansas, 260,000 from 268,000; Illinois, 206,000 from 213,000; New Mexico, 98,000 from 102,000; Wyoming, 90,000 from 92,000; Arkansas, 76,000 from 78,000; Michigan, 46,000 from 47,000; Pennsylvania, 35,000 from 36,500; Kentucky, 28,500 from 29,000; Montana, 21,000 from 22,000; Indiana, 13,000 from 13,500; and New York, 13,000 from 13,500. Unchanged are Louisiana, 365,000 barrels; Mississippi, 48,000 barrels; Colorado, 20,000 barrels; West Virginia, 8200 barrels; Ohio, 7000 barrels; Nebraska, 800 barrels, and "other," 500 barrels.

Crude Oil Production in the United States

(Estimates compiled by the OIL WEEKLY. All figures indicate daily averages in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED Jan. 5	Dec. 29
Alabama	200	150
Arkansas	75,900	75,800
California	837,200	834,100
Colorado	20,400	20,500
Florida	100	100
Illinois	202,900	201,050
Indiana	12,750	12,800
Kansas	205,950	241,900
Kentucky	28,800	28,500
Louisiana	371,500	371,600
North Louisiana	76,200	76,200
South Louisiana	295,300	295,400
Michigan	48,800	48,750
Mississippi	54,500	53,950
Missouri	100	100
Montana	20,000	20,100
Nebraska	750	750
New Mexico	99,150	98,800
New York	13,300	13,200
Ohio	6,800	6,800
Oklahoma	392,800	390,850
Pennsylvania	32,750	32,500
Tennessee	35	35
Texas	1,999,300	1,922,800
Upper Gulf Coast	487,300	469,200
East Texas Field	320,200	307,100
Rest of Eastern Texas	139,600	135,350
Southwest Texas	328,700	314,600
West Texas	489,600	465,850
North Texas	152,800	149,700
Panhandle	81,100	81,000
West Virginia	8,100	8,200
Wyoming	93,500	93,600
Total United States	4,525,585	4,476,935

State Would Govern Direct Industrial Sales of Gas

The Indiana Public Service Commission has ruled that the state has authority to regulate direct industrial sales of natural gas in the state.

The opinion came in the case of Panhandle Eastern Pipe Line Company which sells gas directly to Anchor-Hocking Glass Corporation. By the ruling the commission has ordered Panhandle Eastern to file with it tariffs covering rates, rules and regulations relative to its direct industrial sales, its annual reports and other such information.

Parkhill Truck Company Sold to Stanley-Bledsoe

F. E. Stanley and C. C. Bledsoe, copartners in Midwestern Engineers of Tulsa, announced they have purchased all properties and equipment of Parkhill Truck Company of Tulsa, one of the largest oil-field and pipe-line trucking concerns in the world. Included in the sale are 182 pieces of heavy equipment, together with the Parkhill warehouse, office building and repair shop.

Stanley and Bledsoe are among the most active operators in oil, gasoline and natural gas pipe-line operations in the country engaged in engineering work in connection with design and construction of pipe lines, pump stations and compressor stations. They also control Midwestern Drillers which engages in the drilling and drilling contract business; Midwestern Sales which handles the sale of pipe coatings, wire lines and other oil industry equipment and materials and Stanley and Bledsoe Construction Company.

Carey Link, former traffic manager of War Emergency Pipe Lines, Incorporated, and later traffic manager for the Tennessee Gas and Transmission Company's big natural gas line from Texas to the East, will manage the enterprise which will continue to operate under the name of Parkhill Truck Company.

Pacific Fuel Oil Demand Brings About Rail Hauls

Efforts of the Navy to speed the return of servicemen from Pacific points by landing them on the West Coast and there refueling vessels have led to a new shortage of Navy fuel oil there which has necessitated resort to rail movement to get Texas oil to California refineries.

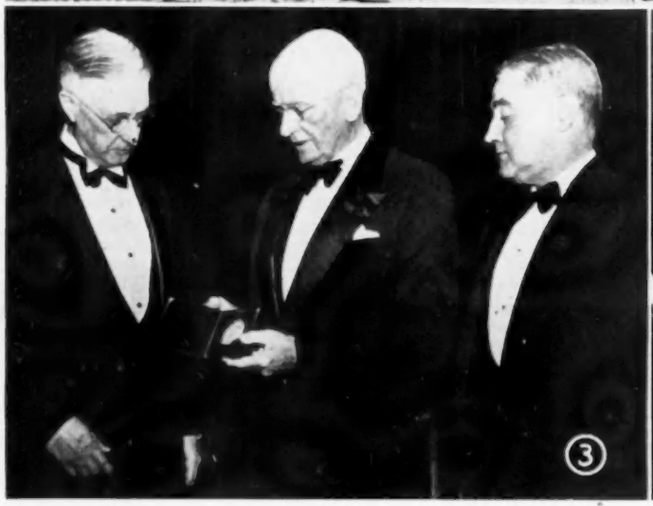
This stepping up of the demobilization program has resulted in a sharp increase in estimates of Navy fuel requirements over the original figures at a time when Washington officials were concerned with the fuel oil and kerosine situation on the Atlantic Seaboard, where it was hoped supplies would be increased as a result of raised ceilings announced by the OPA late last month.

PAW Winding Up

PAW has reduced employment from its wartime peak of 1480 to 90, and only the supply and transportation division, the refining division, the Deputy Administrator's office and the administrative and information divisions are now active. The various divisions are winding up their affairs and completing their final reports.

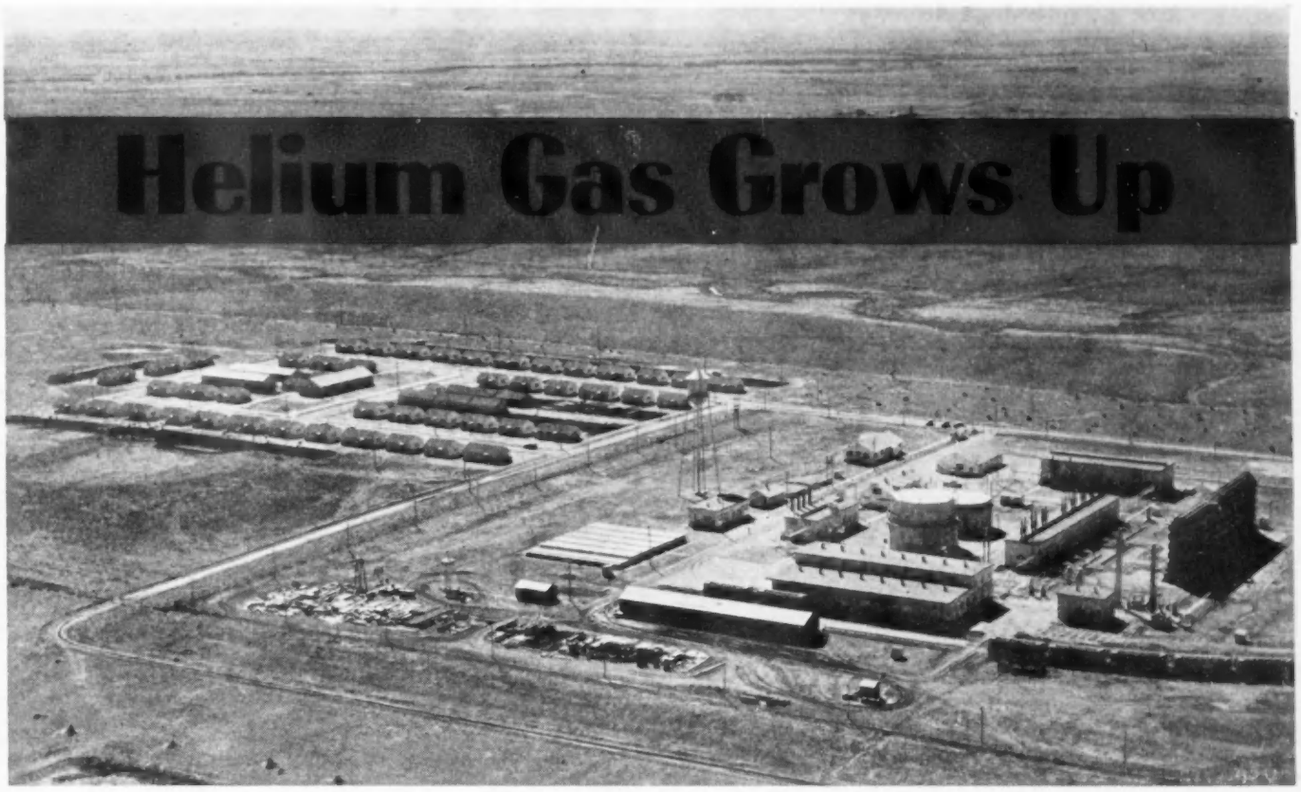
The most important matter pending is the settlement by the refining division of some $50 million of claims arising under the aviation gasoline reimbursement plan.

THE NEWS IN PICTURES



1. Although strictly a land plane, the new 80-passenger Burnelli can descend on the water, shed its wings, and travel for days as a ship, using a diesel-driven underwater propeller. —Acme Photo.
2. Kamikaze planes saved by Japs for attacks on U. S. invasion ships were gathered by Marines, sprayed with gasoline, then set afire by flame-throwing tanks. —Acme Photo.
3. Dr. Joseph A. Cushman, left, paleontologist of Sharon, Mass., receives the Hayden Gold Medal in Geology, presented by the Academy of Natural Sciences, Philadelphia, from J. Edgar Pew, vice president of Sun Oil Company, center. Charles M. Cadwallader, right, president of the Academy, looks on. The Hayden medal is given every three years for the best publication, exploration, discovery or research in the science of geology and paleontology. —Acme Photo.
4. S. J. Dickey, president of General Petroleum Corporation of California, set a precedent in business technique when he broadcast a management's report to its employes. He announced that additional increases in pay have been established, that the company is furnishing employment to 30 percent more people than at the start of the war, and that all returning servicemen and women are being taken back into their old, or better jobs where possible.

Helium Gas Grows Up



Aerial view of Otis Helium Plant and camp — Army Air Corps Photo from Bureau of Mines

Kansas Plant Is Typical of Those Set Up During Wartime by the Bureau of Mines

By P. V. MULLINS, Engineer-in-Charge
Bureau of Mines Otis Helium Plant, Otis, Kansas

THE Bureau of Mines, world's sole producer of helium gas in quantity, constructed and placed in operation in 1943 its Otis Helium Plant in Rush County, Kansas. The augmented facilities were needed to meet wartime demands of the armed services for the buoyant gas, helium, used in patrol blimps and weather and barrage balloons, and for other war purposes.

In prewar years, the Bureau's Amarillo, Texas, Helium Plant was the largest and virtually the only helium production plant in the world. After war was declared, the Bureau built its Exell, Texas, Helium Plant, 35 miles north of Amarillo, followed by the Otis Helium Plant and others.

Typical Plant

The Otis plant is typical of the wartime plants constructed by the Bureau to extract helium from natural gas being transported to markets by commercial pipe lines. It processes gas from the Otis field in Rush and Barton counties, which, like gas from several Kansas fields, contains a small percentage of helium—sufficient in this case for economical extraction.

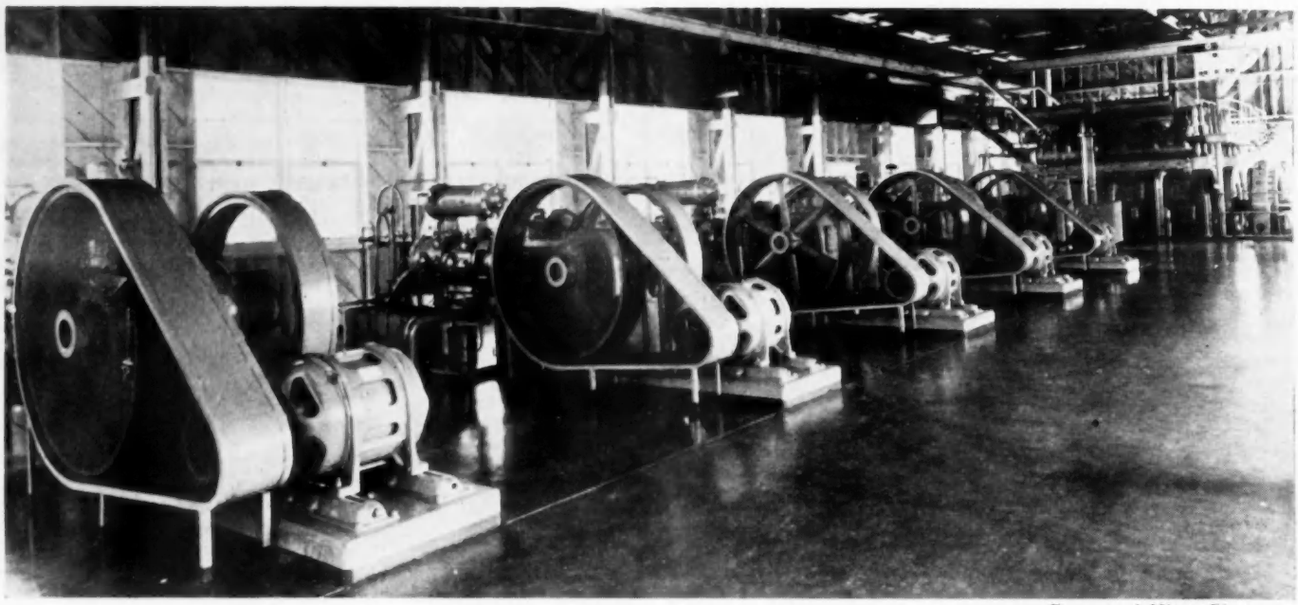
Gas-processing agreements between the Bureau and the Northern Natural Gas Company and the Producers Gas Company and associates, operators of principal pipe lines from the Otis field, permit the Bureau plant to treat all or any part of the volume of natural gas passing through the pipe lines. After the helium is extracted the gas is returned to the pipe lines only slightly reduced in volume by virture of removal of helium, fuel gas, and some minor constituents. This arrangement requires two pairs of eight-inch pipe lines 3½ and 2 miles long between the suppliers' pipe lines and the Otis plant. In each case, the pipe line connections are directly downstream from the companies' combination dehydration-desulphurization plants in the Otis field.

The future of helium seems likely to be linked with that of light metals. Highlighted by its use in the Navy blimps during the war, this inert gas has been made spectacular by its effectiveness. It is no longer a laboratory curiosity, and the Bureau of Mines can supply large volumes to anyone who has a legitimate use for it. Undoubtedly helium will be utilized more and more as industry becomes familiar with its properties and availability. It has been found that many of the problems encountered in extracting this by-product of natural gas are common to other phases of the petroleum industry. These are discussed in the accompanying paper, which is published by permission of the Director of the United States Bureau of Mines.

The Otis Plant site, 1½ miles southeast of the town of Otis, was chosen by reason of its proximity to the aforementioned gas source and to a mainline railroad. Lack of adequate housing in the sparsely populated area prompted the construction, adjacent to the plant, of 45 small houses which are rented to operating employes.

Plant Construction

Actual construction of the plant was begun in February, 1943, and in spite of critical material and labor shortages it was placed in operation October 21 of the same year. The Stearns-Roger Manufacturing Company of Denver was prime contractor for engineering and construction services, with the exception of the special helium-extraction equipment, which was designed and fab-



Bureau of Mines Photo

Four-stage helium compressors with gas engine driven electrical generating units in background

ricated at the Bureau's Amarillo Helium Plant and subsequently installed at Otis by Bureau personnel.

The Otis Plant shows evidence of wartime construction. Frame buildings were used throughout due to the shortage of steel. The buildings were dispersed as an extra precaution against fire and explosion hazards. Prefabricated houses were necessary to expedite construction of the camp. Used equipment utilized because of new shipment shortages and slow deliveries included oilfield boilers, electrical generating engines, a gas holder, an elevated water tank, and lesser apparatus. Despite some substitutions and departures from peacetime choices of construction and equipment, the completed plant presents a pleasing appearance and has been very satisfactory in performance.

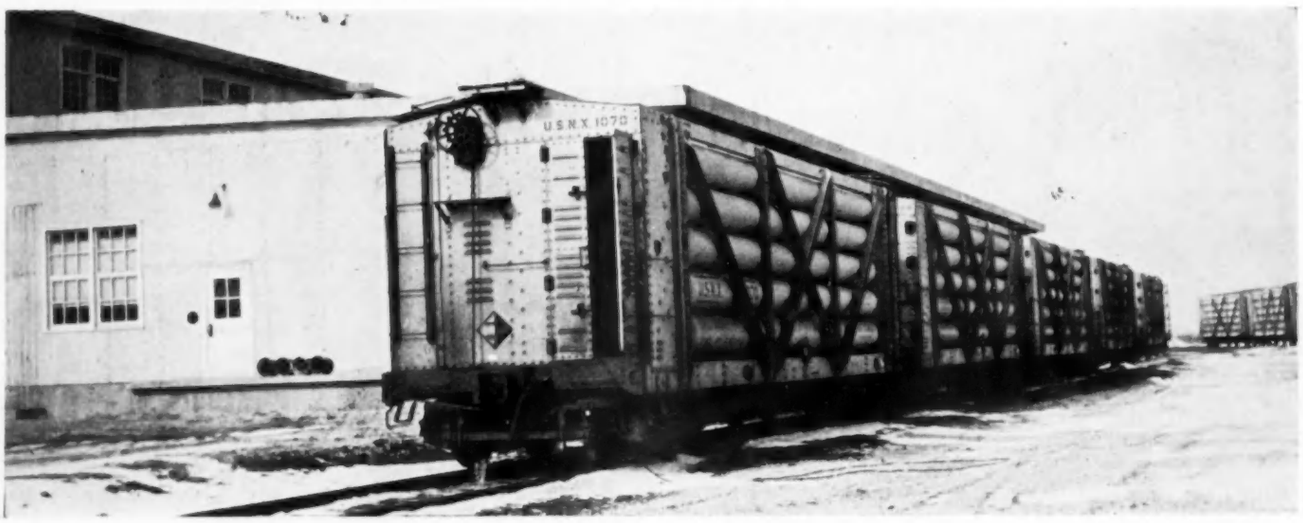
Some interesting construction features are embodied in the main operating buildings. These are framed with wooden Pratt trusses, some of which are quite bulky because of the loads imposed by the size and shape of the buildings and the crane loads incident to handling equipment. The buildings have 1x12-inch diagonal wood sheathing covered by ¼-inch-thick flat transite sheets. Roofs are made up of two-inch-thick gypsum plank topped with tar and gravel. The over-all result is sturdy buildings of good appearance, reasonable fire resistance, and in general, suitability for the purpose.

The Process

The helium-extraction process used at the Otis Plant is basically the same as that developed and used for the past several years at the Bureau's Amarillo Helium Plant, previously reported by C. W. Seibel[1], C. C. Anderson[2], and others. The process depends on liquefaction at high pressures and low temperatures of the more readily liquefiable constituents, chiefly hydrocarbons, and the withdrawal under pressure of helium as a gas accompanied by small quantities of nitrogen. Pressures used in the process range as high as 2700 pounds per square inch, with temperatures as low as 312° F. below zero.

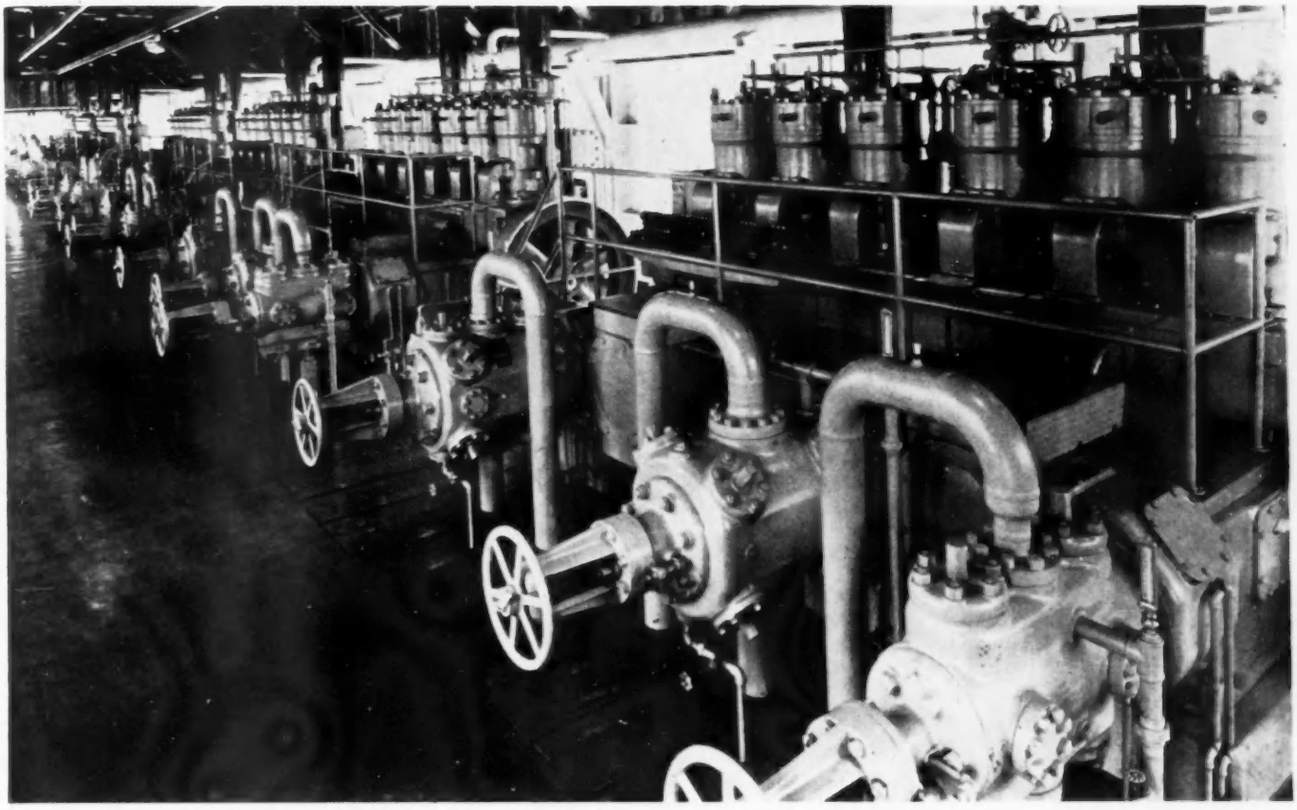
As required for the Bureau's process, natural gas from the Otis field is first compressed to about 600 pounds per square inch. It is then water-cooled in atmospheric sections of a cooling tower and passed through treating units to remove carbon dioxide—and any hydrogen sulphide—and water vapor. Next, the treated gas enters the helium extraction units, passing through exchangers for pre-cooling and finally undergoing reduction in pressure by throttling with accompanying cooling and partial liquefaction. The liquid and gas mixture enters a separator, from which controlled separate withdrawal of liquid and gas phases is made. The liquid is routed back through the exchangers to cool gas entering the unit and finally, at atmospheric temperature, it is recompressed and returned to the original pipe line sources in the Otis field. Withdrawal of the gas phase from the separator is normally controlled to provide a mixture of about 60 percent helium and 40 percent nitrogen, which is designated as "crude helium" and sent to temporary storage in a low pressure gas holder.

Crude helium is purified in a cycle lo-



Helium tank cars of Navy department

Bureau of Mines Photo



Angle type 600-horsepower, two-cycle gas compressors Bureau of Mines Photo

cated in the liquefaction column with the crude helium cycle and integrated with it. The first step in purification is four-stage compression of crude helium from holder pressure to 2700 pounds per square inch. This is followed by passage through lump caustic to remove water vapor and then by cooling, without pressure reduction, to a temperature of about 312° F. below zero, where virtually all nitrogen from the 60-40 helium-nitrogen mixture liquefies. The final step is continuous separation of the two phases with passage of the gas phase —production of helium of about 98.5 percent purity—to high-pressure shipping containers or storage.

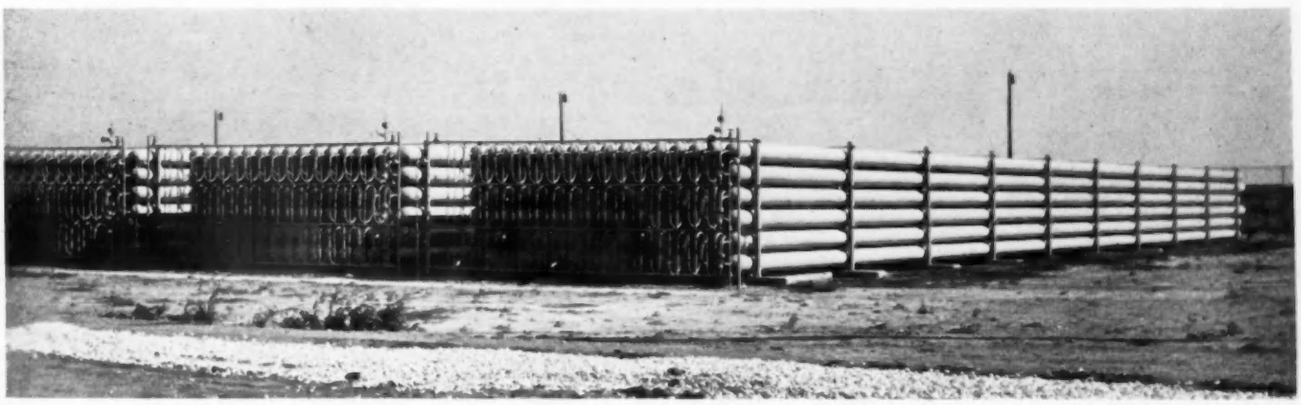
Most helium shipments are made in special helium tank cars, property of the Navy. Each car has 28 or 30 steel cylinders mounted horizontally lengthwise of the car. The cylinders accommodate shipping pressure of 2000-2400 psi, and each car when filled to capacity contains approximately 200,000 cubic feet of helimum, measured at standard pressure and temperature. Helium is also shipped at similar pressures in standard compressed-gas cylinders loaded in conventional box cars.

Storage of production helium under high pressure at the plant is provided by banks of cylinders fabricated from ten-inch extra-heavy pipe in double lengths stacked in rows of 14 cylinders, six high, and suitably manifolded for convenience in filling and discharging.

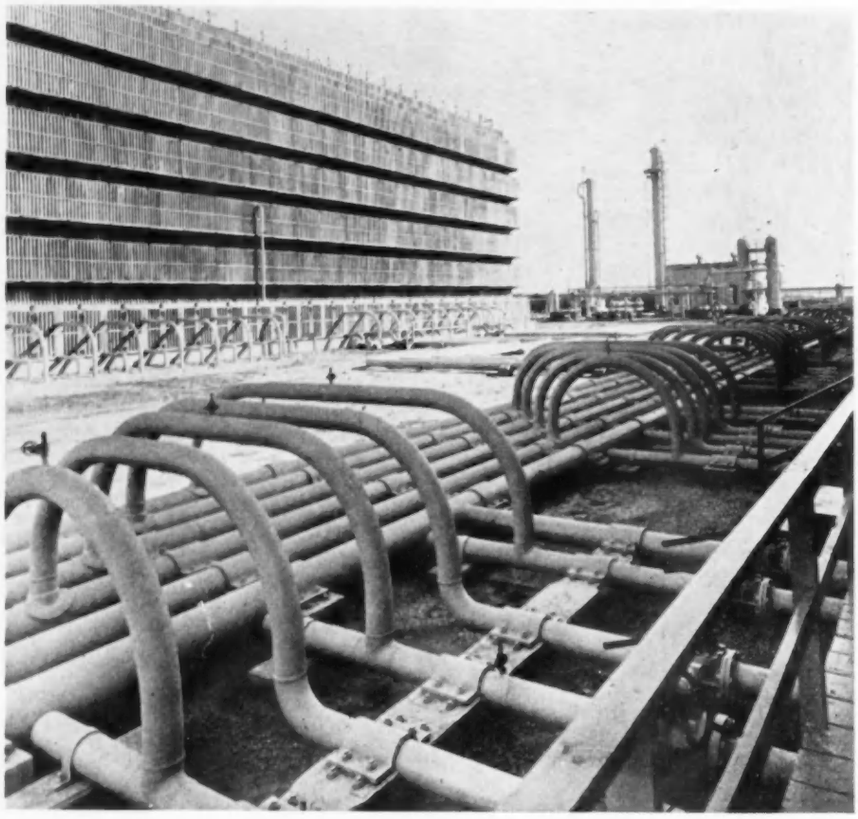
Most of the refrigeration for the overall helium-extraction process is obtained from expansion of the natural gas in the crude helium cycle. The balance of the refrigeration, and that responsible for the lowest temperatures, is obtained from a refrigeration cycle using nitrogen as the refrigerant. The nitrogen is compressed in three stages from holder pressure to 450-600 pounds per square inch, water-cooled, and expanded at the helium-separation units to near atmospheric pressure for refrigeration. The expansion is performed in 5½x5½-inch vertical, single-acting engines connected by V-belts to fluid brakes using water as the fluid medium. The cold nitrogen exhaust vapors from the engines are directed through both purification and crude helium cycles, and thence through exchangers to cool high-pressure nitrogen en route to the engines.

Nitrogen is a fairly common and abundant constituent of most helium-bearing natural gases, and that required as make-up for the nitrogen refrigeration cycle is continuously withdrawn as needed at a convenient point in the processing cycle. It is stored in a low-pressure holder connected to the nitrogen circuit.

A special feature of the processing



High pressure helium storage facilities at Otis Helium Plant Bureau of Mines Photo



Headers and piping loops for gas compressors with cooling tower and gas treating equipment in in the background. Bureau of Mines Photo

circuit is a combination gas-proportioning and gas-measurement station which maintains a chosen volumetric proportion between streams of gas from the two suppliers and a corresponding ratio on outlet gas available for return to them. This function is performed by interrelated recording flow-control instruments. The arrangement permits chosen constant suction and discharge pressures on the inlet and outlet gas streams to and from the plant compressors. Although the control station provides gas measurement, standard sales meters are situated at the connections to suppliers' pipe lines in the Otis field, where metering conditions are normally more favorable.

Compression Equipment

Natural gas is compressed for the process in angle-type, 2-cycle, 600-horsepower gas-engine-driven compressors equipped with three compressor cylinders. One cylinder of each engine is used on a "first service" of initial compression of natural gas from plant inlet pressure to 600 psi. The other two cylinders of each engine are used on a "second service" of two-stage recompression of processed gas to plant outlet pressure for return to suppliers' pipe lines. This arrangement of the two services on each compressor provides at all times the necessary balance between gas entering and leaving the plant and helps to avoid complications that might otherwise arise during intentional or inadvertent engine shutdowns. All compressor cylinders are equipped with variable clearance pockets to accommodate reasonable ranges of pressure conditions.

Gas-engine-driven compressors, similar to those for natural-gas compression, are used for three-stage compression of nitrogen from near atmospheric pressure prevailing in the holder to about 600 psi for use in the nitrogen refrigeration cycle.

A single atmospheric-type cooling tower with services arranged for maximum efficiency provides all engine and gas cooling for the plant. Cooling water for engine and compressor cylinders is confined in a closed cycle with cooling taking place in atmospheric sections in the cooling tower. Similarly, all interstage and afterstage cooling of natural gas and nitrogen is obtained by passage of the gas through similar tower sections. The tower is designed for high efficiency to obtain the greatest cooling for the benefit of the overall refrigeration cycles that form the basis of the helium-extraction process.

Crude helium is compressed from near atmospheric pressure prevailing in the holder to about 2700 psi, preliminary to final purification, by 50-horsepower, electric-motor-driven, 4-stage compressors. Interstage and after stage cooling is accomplished in a combination of shell-and-tube and tank-and-coil exchangers, at the compressors, with water direct from the cooling tower.

Gas-Treating Equipment

The gas-treating equipment is designed to remove substantially all of the carbon dioxide—and any hydrogen sulphide—and water vapor from the natural gas after initial compression to 600 pounds pressure and just before passage of the gas to the low-temperature liquefaction columns for helium extraction. The primary purpose of treatment is to remove constituents that would solidify at low temperatures, causing plugging of interchanger tubes and control valves and coating of heat-exchange surfaces with attendant reduction in efficiency.

The Girbotol process[3], as modified by A. K. L. Hutchinson[4] and reported by T. S. Bacon[5], is used for removing carbon dioxide and part of the water vapor. The gas is dehydrated further by passage through a solid adsorbent-activated bauxite.

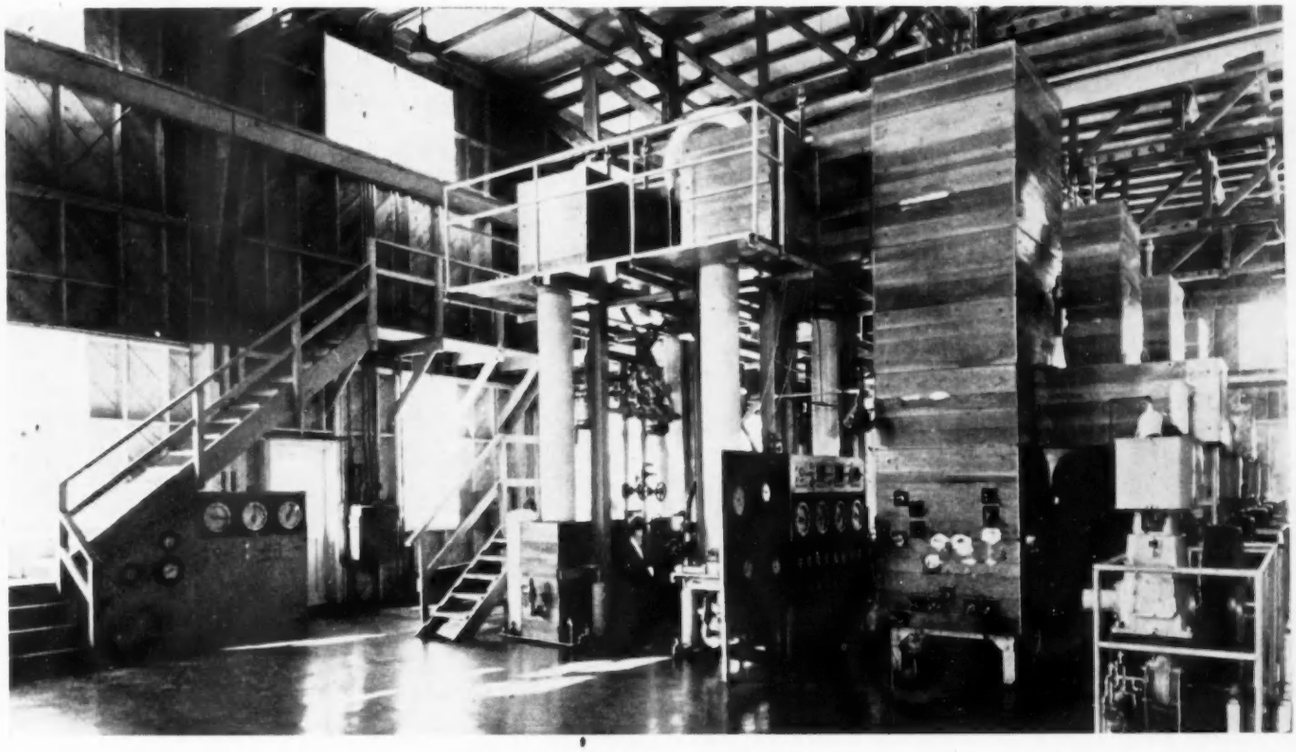
In the process, a solution of approximately 18 percent monoethanolamine, 80 percent diethylene glycol, and 12 percent water is forced by a triplex plunger pump into a bubble tower for contact with the gas under 600 pounds pressure. Rich solution from the contactor is passed continuously to a bubble tower still for reactivation at about 280° F. and then recirculated. Heat in lean solution from the still is exchanged to rich solution en route to the still, and the former solution is finally water-cooled to a moderate temperature before injection into the contactor. To prevent loss of the adsorbent chemicals from the still, particularly amine which has appreciable vapor pressure at the prevailing temperatures, a small amount of water condensed from the still vapors is continuously returned to the top of the still as reflux. The overall treating equipment is so installed and equipped as to be virtually automatic in operation and require only periodic supervision.

Following passage through the contractor in the Girbotol process, the natural gas, still at about 600 pounds pressure, is passed through beds of 4-8 mesh solid adsorbent, activated bauxite, for final dehydration. This is a batch process accomplished with two adsorber towers, used alternately, with reactivation of the companion tower with countercurrent flow of natural gas at about 200 pounds pressure and 350° F.

Natural gas processed at the Otis Helium Plant has been treated for acid gas and water removal at the suppliers' combination desulphurization-dehydration plants of the Girbotol type in the Otis field. Thus, even though the Otis Plant treating equipment is capable of doing so, it normally has only very small quantities of hydrogen sulphide and water vapor to remove; but it must continuously remove carbon dioxide, which is less readily absorbed and so persists to the extent of a few tenths of a percent through the suppliers' treatment. The treated natural gas en route to the helium extraction units normally contains considerably less than 0.01 percent by volume of carbon dioxide and virtually no water vapor.

Helium-Extraction Equipment

Liquefaction columns, or helium-extraction units, at Otis are of a type developed by the Bureau of Mines over a 35-year period, principally in operations since 1929 at the Amarillo Helium Plant. Several extraction units, each of moderate capacity, were installed to permit flexibility in operations. Principal materials of construction are copper and brass, which, unlike steel, have good ductility and other physical properties at the extremely low temperatures prevailing in the process. Principal construction features are (1) provisions to accommodate high pressures at low temperatures with virtually leakproof connections; (2)



Bureau of Mines helium extraction units Bureau of Mines Photo

allowances for relatively large thermal expansion and contraction of piping and vessels; and (3) effective insulation to prevent excessive refrigeration losses. Carefully threaded, "sweated," or flanged connections, special expansion joints, and grouping of the coldest vessels in a single column efficiently insulated with mineral wool are principal answers to the three respective problems.

Operation of the units is largely manual, based on observations of temperatures, pressures, gas and liquid flows, liquid levels, and gas compositions throughout the process. Conventional type orifice meters are adapted as liquid-level instruments. Temperatures are measured with copper-constantan thermocouples connected to indicating-recording potentiometers calibrated in a chosen temperature scale. Important gas compositions, principally helium-nitrogen mixtures in the crude helium and purification cycles, are continuously analyzed by instruments using the thermal conductivity principle[6] with indication and recordation on potentiometers directly calibrated in percentage of the constituent being determined.

Plant and Camp Utilities

Utility services for the plant and camp are furnished by plant facilities. All electrical power is generated by gas-engine-driven, direct-connected generators operating at 4160 volts and distributed to principal transformer stations about the plant and camp at generator voltage, through overhead lines which were a necessary choice at the time of construction because of shortages and limitations affecting procurement of underground cable. With the exception of the gas-engine-driven compressors and generators previously mentioned, virtually all power equipment is driven electrically.

Steam in the amount of approximately 200 boiler-horsepower, for process and building heating and for miscellaneous purposes, is obtained from gas-fired, oil-field-type boilers operated at 235 psi. Principal demand for steam is that for continuous heating of amine-gylcol solution in the reactivation still of the gas-treating process for removing carbon dioxide and water vapor. Principal secondary demand for steam, and that which dictates the maximum steam pressure required, is that for heating natural gas to 350° F. for periodic reactivation of the bauxite adsorbent used in final gas dehydration. Plant buildings are heated by forced-circulation-type space heaters using steam at 50 pounds pressure. All steam distribution and condensate return lines are carried overhead on steel supports fabricated from used pipe.

Water for all plant and camp purposes is obtained in ample quantities from shallow wells, three miles south of the plant, tapping the underflow of Walnut Creek. Electric-motor-driven pumps, with a gasoline-driven pump for standby, force the water through a 100-foot increase in elevation and three miles of line in semi-underground concrete reservoirs at the plant, having a combined capacity of 100,000 gallons. Periodically, water is pumped to a 50,000-gallon overhead tank which provides pressure for distribution. The water line from wells to plant and virtually all other principal water transmission and distribution lines are transite.

A separate fire-line system is provided in plant and camp, with a gasoline-engine-driven fire pump situated in the plant for boosting the water pressure in the system to approximately 100 psi to facilitate fire fighting. Water for the fire system may be taken from the overhead tank, storage reservoirs, water-filled gas holders, and cooling-tower basin, to supply abundant water for extended fire fighting if occasion demands.

Plant Operating Record

The Otis Plant was placed in operation by an organization built around a nucleus of trained personnel obtained from the Bureau's Amarillo and Exell Plants. The plant has successfully produced helium at a rate of 25 percent in excess of design capacity and in its initial year of operation produced 2 to 6 times the quantity of helium produced in the United States in any like period before Pearl Harbor. Its production record was recognized April 25, 1945, by receipt of the Army-Navy "E" for excellence in war production. Having served its immediate purpose of furnishing wartime helium to the armed services, the Otis Plant was placed in indefinite standby status August 23, 1945.

The Otis Plant and others constructed by the Bureau of Mines to meet the war emergency have ample production capacity to guarantee the United States a continuing adequate supply of this valuable gas for military and peacetime demands. Stimulated by war needs, new uses have been found for helium, and it seems probable that this trend toward greater utilization will continue in post-war years.

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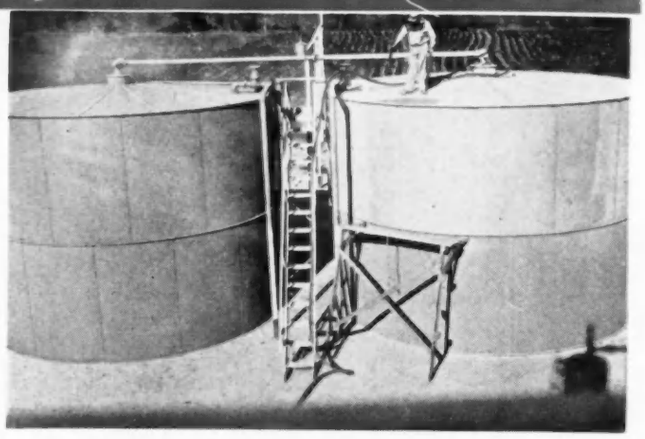
Plastic Coating Service Afield



Sand-blasting preparatory to spray coating with liquid plastic. Tank on left has been primed and finished with liquid plastic coating.

By A. R. McTEE, Staff Writer

Resistance to corrosion makes plastics An ideal coating for oil field equipment

COATINGS for many kinds of oil field equipment are among major uses predicted for corrosion-resistant plastics. Plastic technicians have been quick to see the immediate application of these resins compounded with other materials to surfaces subject to corrosion; also, the few authors of books on plastics have suggested the practical advantages of this type of coating. The fact that many resins are completely resistant to electrolysis, soil acids, alkalis, and prevent incrustations and tuberculations makes them the ideal base for corrosion prevention coatings. Also their resistance to abrasion and mechanical stresses are very favorable factors.

Applying the liquid plastic.

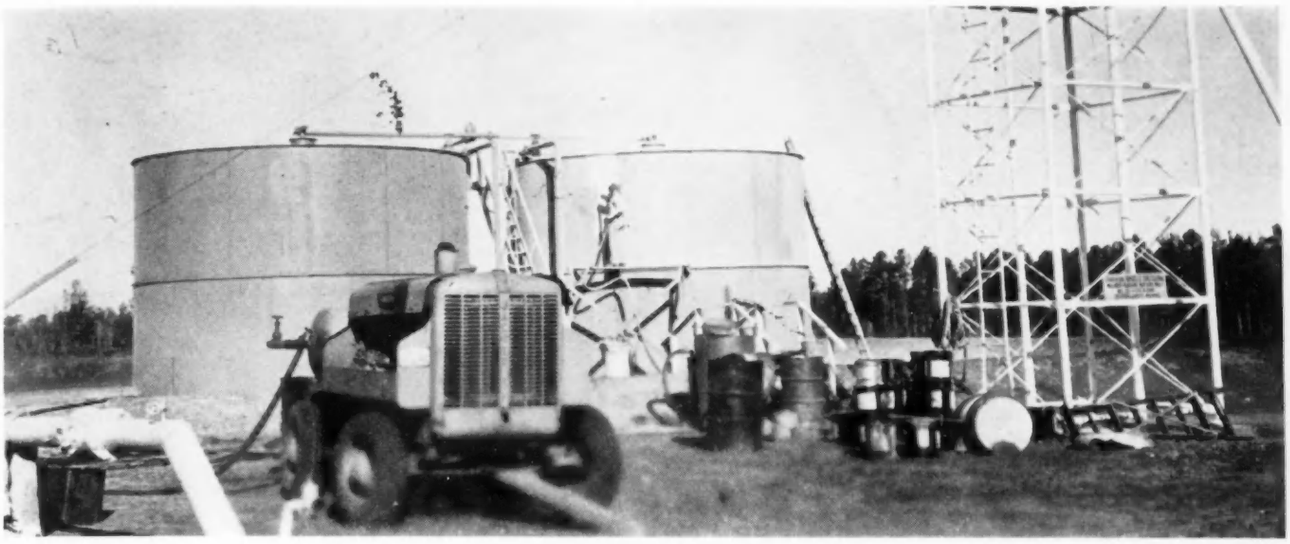
As linings for tanks to hold various corrosive liquids, plastics are well past the experimental stage. Also for other types of oil field equipment such as tubing, pipe, pumps, valves fitting, and other items, plastics seem destined to take a leading place as a desirable coating.

Various companies are experimenting with such coatings. For sometime one concern has been baking on coatings at its Houston plant.

Field Service Offered

On the theory that the best use of plastic coatings for oil field equipment is possible when these materials can be applied on the job where and as needed. Another concern with headquarters in Houston recently began offering a field service. Several units are now in operation applying coatings upon call. The new service is for the application of plastic coating materials to internal and external surfaces of oil storage tanks, tubular goods, and other metal surfaces where prevention of corrosion is a prime consideration. Numerous experiments have been made by the company in typical oil fields, on several kinds of equipment, with satisfactory results. So far there have been no developments to indicate that plastic coatings when properly selected and applied, will fail.

These materials are a combination of chemically inert, thermo-plastic resins. Characteristic of them when they dry, they present an exceptionally tough and highly flexible, air-dry coating which is



Sand-blasting and coating equipment

said to have maximum corrosion and abrasion resistance.

Also, the coating materials are non-conductors of electricity and therefore eliminate some of the possibility of electrolytic corrosion. They are adaptable for use where service temperatures are not in excess of 180° F.

The coatings can be applied equally well to metal, concrete or wood. Bonding is from both adhesion and penetration. Resistance to sunlight, corrosion, and general atmospheric conditions, with apparent lack of deterioration over a long period of time indicate that the materials may prove the answer to many surfacing problems that have been difficult to solve in the past. Judging from the character of the materials and their performance both under experiment and in actual field application, the coating approaches an all-purpose paint with many of the common limitations removed.

Spray Gun Used

The coating is applied with a spray gun, much like ordinary paint. It dries readily in from two to three minutes. Coats should be applied about 30 minutes apart. However, equipment should not be put to use under 48 hours after it has been given the final coat, in order that the coating may be thoroughly set and bonded.

As is the case with all surfacing, materials to be coated must be thoroughly cleaned before the priming coat is put on. Metal items appear to give the most satisfactory results from cleaning by sand blasting. Concrete should be etched slightly with hydrochloric acid. Wood surfaces should be free of all grease or moisture. It is possible to coat equipment that has been cleaned with liquid cleaners or solvents, but the most satisfactory jobs have been on sand blasted equipment. In the case of tanks, also the best job is obtained on new tanks, with the coating applied as the tanks are erected.

A number of major oil companies are already using these coatings and expanded application is in prospect. Among the typical jobs is one in the Magnolia, Arkansas, area. Storage tanks have been coated internally with one prime and three finish coats. These tanks were coated on March 15, and several months later an inspection showed the coatings to be in good condition. The Magnolia area represents one of the worst in oil fields because of the very high hydrogen sulphide content of the crude oil, and is considered a highly corrosive district. A major and persistent difficulty in internal protective tank coatings has always been the under side of the deck which is subject to action of tank vapors. So far the tanks in the Magnolia field show no deterioration in the decks.

In the East Texas field, tanks and other equipment in the salt water disposal system have been coated, including tanks, line pipe, tubing, valves and fittings. These applications were made on April 1. After one inspection the equipment was reported as in good condition.

Also salt water disposal equipment in the Sugar Land district, near Houston, has been coated. Results appear good after a single inspection.

At a refinery on the Gulf Coast, a tank continuously subjected to a caustic wash has been coated and shows no signs of deterioration up to this time.

Within a short time several strings of drill pipe on West Texas wells are to be coated inside as an experiment in an attempt to reduce corrosion fatigue failure in that section. This type of failure is common in certain West Texas districts. It is believed that the plastic coating may be effective in cutting down failures from this cause.

The coating is applicable to pipe line compressor stations on both floors and equipment.

A strip-type coating is also produced by this company and can be satisfactorily applied by spray or brush to all types of drilling and production equipment as a protection from corrosion during storage or export shipment. This form of coating is said to afford maximum protection against weather, corrosive elements, aging and mechanical abrasion. The coating can be stripped off whenever desired, leaving the original surface unimpaired.

Physical Properties of Strip Type Coatings

Application—Spray or dip—Allow 30 minutes air dry between coats.

Coating thickness—.003-inch per spray coat.

Film Strength—1400 psi.

Film Stretch at Break—180 to 200 percent.

Moisture Vapor Resistance—Good—Passes Government Spec. No. 14130.

Film Tear Resistance—Good.

Cold Resistance—Will not crack when bent at 32° F. Will bend around ⅛-inch rod at 0° F. Is not damaged at —40° F.

Adhesion—Will not blow off in air blast.

Finish—Smooth, semi-gloss.

Solubility—Soluble in ketones and chlorinated solvents. Unaffected by gasoline, oil, water or alcohol.

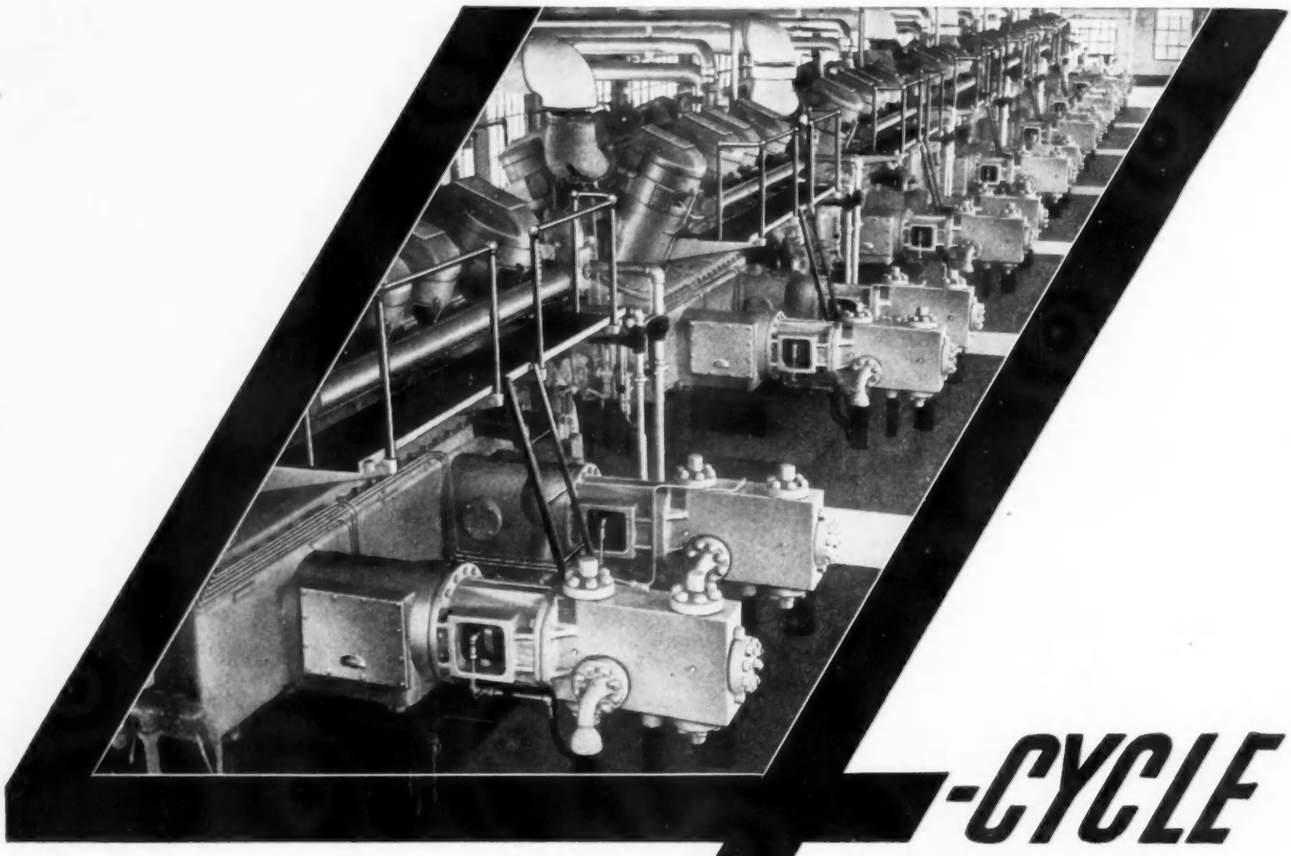
Corrosion Resistance—Resists acids, alkali, and salt water.

Flame Resistance—Will not support combustion.

Heat Resistance—Unaffected in 72 hours at 125° F.

Results of Laboratory Tests Conducted to Determine the Chemical Resistance of the Spray-Type Plastic Coating Materials

REAGENT	4 Coats (.004")	REAGENT	4 Coats
ASTM Salt Spray	O. K.	Tri-Cholr. Ethylene	Roughened
Sea Water	O. K.	Carbon Tetrachloride	Failure
10% Nitric Acid	O. K.	Ethyl Alcohol	O. K.
30% Nitric Acid	Failure	Hi Test Gasoline	O. K.
25% Hydrochloric Acid	O. K.	Glacial Acetic Acid	Failure
10% Hydrochloric Acid	O. K.	Aromatic Gasoline	Softens
10% Sulphuric Acid	O. K.	Photographic Developer Solution	O. K.
50% Sulphuric Acid	O. K.	Hypo Solution	O. K.
Bleach Solution	O. K.	West Texas Crude	O. K.
10% Sodium Hydroxide	O. K.	Hasting Crude	O. K.
20% Sodium Hydroxide	O. K.	Electrolis (Soil Test)	O. K.



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Safety in Arc Welding

Surprisingly few fatalities noted in a survey of welding hazards

Dangerous welding practice. Arc-welding operator should be particularly careful when working above the floor or ground, as many fatalities are caused by men falling.

By R. F. WYER, General Electric Company

THERE is one peculiarity which distinguishes the arc-welding operator's job from other occupations. Arc welding is the only widely practiced industrial occupation in which the operator handles a live electric circuit all day. Yet, in spite of all the implications of that fact, the danger of electric shock to the operator is not as great as is often supposed. It is proposed here to discuss safety factors in arc welding from the electrical point of view.

There are, of course, other viewpoints. For example, the arc-welding operation involves some fire hazards, as well as the ordinary mechanical hazards to the workman which are common to almost any industrial occupation. But these are not peculiar to arc welding.

The presence of fumes and smoke is likewise not peculiar to the arc-welding process, and ordinary means of dilution and removal are employed. The medical aspects of this matter are the subject of careful investigations in a quantitative way, but they all point to adequate ventilation as the practical hazard-preventative measure.

No Mystery Rays

Radiation of ultraviolet and infrared wave lengths from the arc sometimes are regarded as serious hazards. They are not, in the sense that their effects can easily be prevented by commonly used protective helmets and clothing. Mystery rays are not present, although it is surprising how many times the rumor crops up that this or that arc-welding equipment gives off radiations which result in sterility or peculiar ailments such as might be attributed to X-rays. Our plant in Schenectady has effectively disposed of such rumors by having welding operators carry in their clothing pieces of photographic film for weeks at a time. None showed the slightest evidence of radiation.

Thus, the hazard of electric shock is the one of greatest interest from the arc-welding point of view. It seems worth while to discuss it in considerable detail, because it is not as common a source of injury or death as might be supposed from casual acquaintance with the subject, and because there are definite ways in which even the small hazard can be almost completely overcome.

We have tried to keep records, and make a study of fatalities to welding operators from electric chock. It is a difficult task, because insurance statistics are not broken down quite far enough to reveal the needed data, also, rumors and newspaper publicity are notably inaccurate when dealing with deaths in the arc-welding field.

For example, here are two versions, from different papers in the same city, of the one accident. "Stumbled and fell in such a manner that the electrode on his welding instrument was jammed in his mouth. The charged connection sent 550 volts through his body killing him instantly." And, "Fell dead after 440 volts passed through his body. His heavy clothing, which all workers in the shop are required to wear for safety, was soaked with perspiration and, as he accidentally touch a highly charged arc rod used by another worker, a short circuit was caused and the power passed through his body." As a matter of fact, careful measurements immediately following the accident showed a maximum of 76 volts available to shock the victim.

But we do have some concrete information, and it shows a perhaps surprisingly small number of fatalities from this source. One insurance company[1] reported that among one group of policy holders, electric shock was the least frequent cause of occupational death classified—fewer deaths being attributed to shock than to falls, machinery, railroads, or even drowning. This in spite of the fact that the group must have included electricians and workers in electrical manufacturing plants, and in spite of the often evidenced tendency to attribute death to electrocution in any doubtful case where a live electrical conductor is present at the scene.

Survey Findings

In a survey we made among four manufacturers using arc welding, selected at random and not including General Electric Company, these figures were obtained for the year 1941: There were a total of 14,475 industrial workers employed by the four manufacturers, with a total of 13 fatalities, or one death

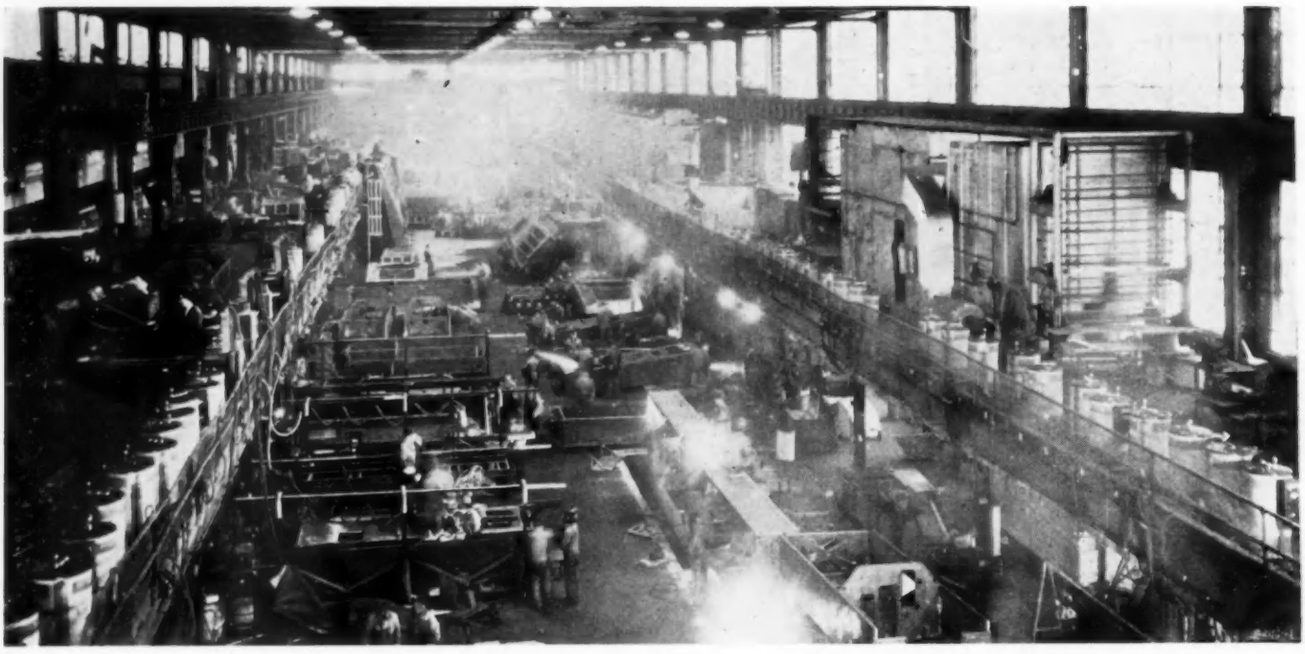

FIGURE 1

Hundreds of 500-amp a-c arc welders (on balconies, right and left), in operation in a tank manufacturing plant during the height of the war effort

per 1110 workers. Included in these totals were 1125 arc welders, among whom there was one fatality.

Our own plants have for many years employed arc welders, with as many as 1500 welding operators employed at one time before the peak in this employment. Yet in the last seven years there has been but one fatal accident to a welding operator. This one was in 1938, and there is considerable doubt as to whether death was caused by electrocution or by a fall.

The district supervising engineer of one large insurance company[2] stated in 1942 that, as measured by compensation rates, arc welding is only 75 percent as hazardous as gas welding. Yet gas welding is not generally considered a very hazardous occupation.

In 1942, still another insurance company[3] reported about one electrocution case per month for the preceding two years, only two of which involved arc welding. These two cases were the only ones they had had for many years.

While no figures on the total employment of arc-welding operators are available, a conservative estimate based on industry sales of arc-welding equipment and on the consumption of electrodes gives a figure well over 200,000 for the year 1943. So far, we have heard of only four electrocutions among arc-welding operators during the year 1943.

Hazards Classified

The shock hazards which do exist might be classified as to their relationship to equipment and its layout, maintenance, supervision, and operator education.

An idea of the magnitude of some arc-welding operations, and of the care which must go into the selection and arrangement of the equipment, is shown in Figure 1. This particular plant has about 250 a-c arc welders, which are shown on the balconies, left.

A typical application of arc welders is the fabrication of large girders as shown in Figure 2.

Figure 3 shows atomic hydrogen arc-welding equipment in operation, and brings up the perpetual question as to the relative hazard in a-c and d-c welding. Here there is at times a potential of 300 volts between the two slender electrodes projecting up and to the left from the arc. It is alternating-current. No case of severe shock, and no fatalities resulting from the use of this equipment, have ever come to our attention.

The point is made to demonstrate the fallacy of arguments, based on clinical or laboratory experience, as to the difference between a-c and d-c with respect to shock hazards. In this equipment an adequately insulated electrode holder is used, and factory-designed and built protective equipment disconnects the power when the arc is not actually in use.

Laboratory Study

Exhaustive studies on let-go currents, made at the University of California, definitely prove that under laboratory conditions, a victim is less likely to freeze onto an electrode with d-c than with a-c, at a given current in millamperes. But to draw the conclusion that d-c welding is invariably safer than a-c welding is to ignore the factors of voltage, insulation, protective equipment, skin resistance, and physical condition of the subject.

The extremes to which interpretations of these tests may go is indicated by the recent development of a theory, by a welding supervisor, that while 24 volts are safe, 28 volts are dangerous. Or by the performance of another welding supervisor, who knelt in water on a steel deck and grasped an electrode with soaking wet gloves, to demonstrate that one can feel 35 volts, but not 10 or 12. If such a demonstration ever convinces a welding operator that it is safe to place the body intentionally across any electric circuit, it may well be a contributing factor to his untimely death.

What are the welding equipments we are mainly concerned with? First, a single-operator d-c welder, shown in Figure 4.

Figure 5 is a cut-away view of similar equipment showing the motor at the left, with d-c generator at the right of the assembly. The motor usually operates on 220, 440, or occasionally 550 volts, three-phase, a-c. The generator delivers from 50 to 100 volts, d-c. Insulation around the windings of the motor, and additional insulation on the generator, effectively separates the power-circuit voltage and the welding circuit.

Shown in Figure 6 is a common type of a-c welder which transforms energy from the power system into lower voltage and higher current, with control of the current output to suit it to the welding process. This equipment also insulates the power circuit from the welding circuit. The input, or power circuit winding, is electrically separate from the 75-volt welding circuit winding.

Another form of a-c welder, designed particularly for outdoor service is shown in Figure 7. This welder includes a welding transformer like the indoor type, together with a built-in control panel which automatically reduces the voltage on the welding circuit to about 30 volts within 1/15th of a second after the welding arc is extinguished, as when the electrode must be changed. Touching the electrode to the work automatically puts full power on the welding circuit again.

With respect to the installation of arc-welding equipment, the major safety point is the necessity of grounding the frame of the welding set, regardless of whether it is an a-c or d-c unit, or whether it is stationary or portable. Common sense, as well as the National Electrical Code, demand that this should be done. An ungrounded unit, even one in perfect condition, can give annoying shocks and tickles to a grounded individual, because of the inherent ability of an electrical circuit to induce a static charge on another conductor separated from it by insulation. The effect is the same as that in a condenser, or Leyden jar.

Danger from Frame

In the event of failure of the insulation, due to age, abuse, or accident, the frame of a unit may become charged to

full power circuit voltage, with serious consequences, unless the frame is grounded. If the proper ground connection is in place, however, the frame cannot have a voltage to ground, and the only effect of such a failure will be the blowing of fuses or tripping of circuit breakers and disconnection of the unit from the line.

This immediately suggests the necessity of installing adequate overcurrent protection and switches in the power circuit to the welder. Fuses or circuit breakers must be capable of interrupting the maximum current which may be drawn by a short circuit in the motor or power leads of a d-c welder, or in the primary circuit of an a-c welder. Disconnecting switches must be capable of interrupting the stalled rotor current of the d-c machine, or the maximum current which can be drawn by the a-c unit when the welding electrode is short-circuited on the work.

Electrode Holder

On the welding-circuit side of a unit, care should be taken to avoid the possibility of getting double the normal circuit voltage between two adjacent welding circuits, because of the connection of one unit with one polarity, and the other with opposite polarity. On a-c units, abnormal voltage of somewhat lower value can also be obtained if adjacent welders are operated from different phases of the supply line. This factor has rarely, if ever, caused serious trouble because of the small likelihood that an operator will get hold of two welding circuits at once.

Probably the most important item in equipment, from the safety point of view, is the electrode holder. Although uninsulated holders have been used in arc welding for many years, good practice unquestionably requires that fully insulated holders should be used.

Figure 8 not only shows an uninsulated electrode holder, but incidentally, an ideal set-up for potential trouble. The operator is in a cramped space, and also undoubtedly in contact with the conducting metal in a number of places on his body, unless his clothing is dry and his shoes free from nails. In his hand he holds an electrode holder which has a handle of insulating material, but through which extends an uninsulated screw-head. Probably any contact he might make with the screw, through wet gloves or with the bare hand, would be too small in area to permit electrocution. But a shock may make him do something involuntarily, which will put him in danger. The worst feature of this holder is that the head, projecting out beyond the ring or collar of insulating material just above the hand, is entirely uninsulated. Each time the operator changes welding electrodes, there is a good chance that he will contact this exposed metal. If he should fall on the holder, or sling the cable over his shoulder or around his neck, as is frequently done, this live conductor may contact his chest or back.

Holders Available

There are now several types of good insulated electrode holders on the market. They should be used on any welding job, and their insulation should be kept in first-class condition. Studies of accident reports reveal, in a good percentage of cases, evidence that uninsulated electrode holders caused or contributed to death.

Maintenance and supervision play an important part in the safety side of welding, as is the case in almost any other process. Fire hazards should obviously be watched for and, when found, eliminated. Welding cables and their connectors should be examined frequently for breaks in insulation. The extremely hard service to which welding cables are subjected often results in severe damage to the insulation. Yet the welding operator, accustomed to arcs and sparks in his daily work, often disregards accidental short circuits which spell trouble to the safety man or the fire inspector. Likewise, welding return circuit connections should be given attention, by supervision. Arcs or flashes in unexpected places along the return path of the welding current may result in fire hazards if reinforcing rods, scrap lengths of pipe or bar laid together, or building piping are indiscriminately used.

Ground Connections

The maintenance of adequate safety ground connections to the frames of all welding machines should be checked, because many operators do not realize their importance. For the same reason, the maintenance of insulation on electrode holders should not be left to operators alone. Electrical repairs and connections on the power-line side of the welder should be handled only by competent men.

In the last analysis, it is obvious that the welding operator and his safety education plays the greatest part in preventing accidents to himself. It is undoubtedly significant that at least one—there are probably others—of the large electrical manufacturing concerns has an unusually good accident record in regard to shocks to welders. Regardless of special instructions, the whole philosophy of such a group of workers leads to a healthy respect for all electrical circuits and proper care in handling them.

The paramount warning should be to

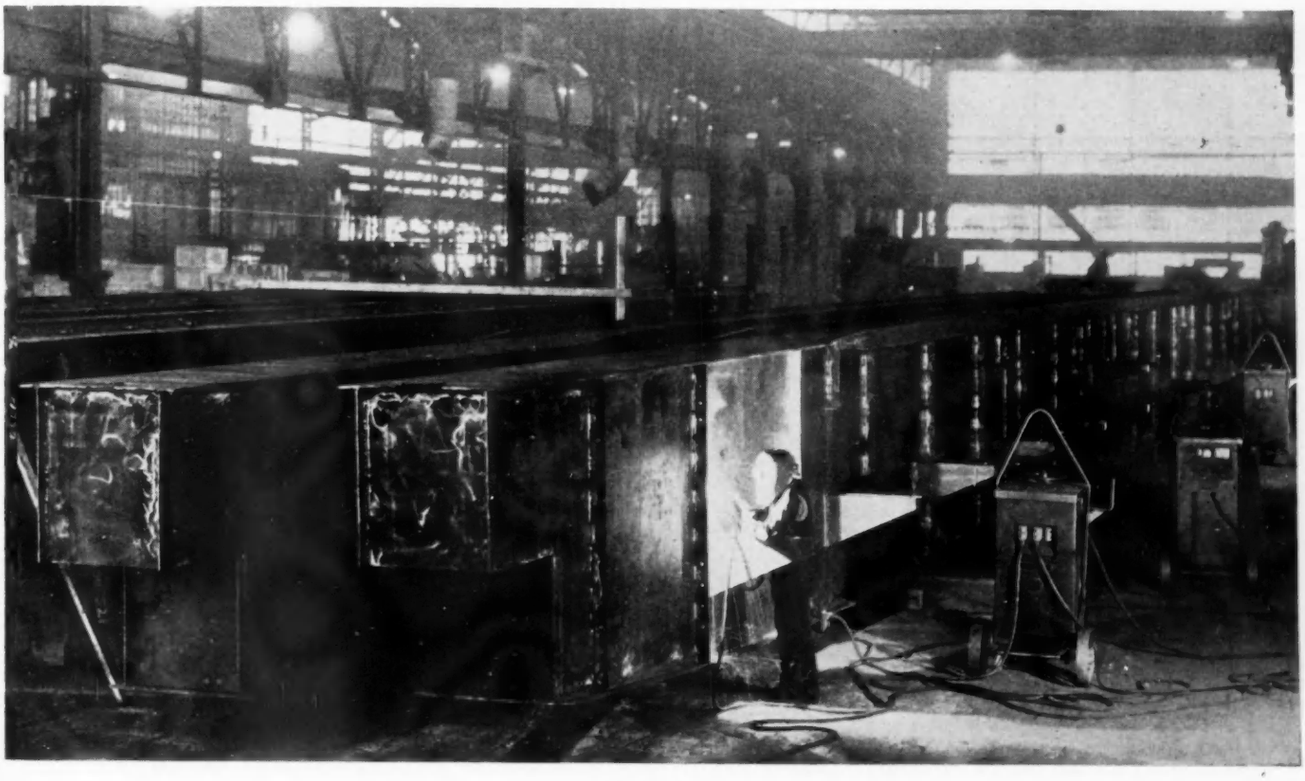

FIGURE 2
120-foot bridge girders for 15-ton mill-type crane being fabricated with aid of alternating current arc welders. These are the longest "all-welded" crane girders ever built. Each weighs 36 tons.

FIGURE 3
Atomic-hydrogen arc welding on aluminum

FIGURE 8
Tank for large oil circuit breaker being welded

take particular care in hot and humid weather, and when welding in wet places. Almost without exception, fatal accidents to welders occur in hot weather. The operator's own condition and that of his clothing should be his guide. He should always guard against wet gloves, shoes, and clothing, particularly clothing made of thin cotton fabrics.

Operator's Responsibility

The operator should assume the major responsibility for seeing that the insulation of the electrode holder is in good condition.

He should learn to carry an electrode holder by the handle, never slung over his shoulder, or squeezed under his arm.

He should never, under any circumstances, transport an electrode holder with an electrode or electrode stub in it.

He should never throw or lay an electrode holder down so that it makes contact with any conducting material.

He should never work alone in confined or concealed spaces where, for example, striking his head may cause temporary loss of his faculties.

Care Above Ground

He should be particularly careful when working above the ground or floor, since it is significant that many fatalities involve a fall.

Case studies, incomplete as they usually are, give a basis for these recommendations. For example, in all but one of nine reports of accidents, dating from 1934 to 1943, the statement was made that the weather was very hot, or that the victim's clothing was soaking wet. In five of these nine cases, a fall was involved, ranging from a height of 11 feet to the case of a standing man who fell to a steel floor. In every one of them, the electrode holder was uninsulated, and in none was there evidence of contact with any live part other than the electrode holder. Four of the cases involved arc welding operators working in confined spaces.

This discussion can be summarized as follows:

(1). Arc welding is not a hazardous occupation, as judged by industrial standards.

(2). Electric shock is a relatively infrequent cause of death.

Where electrocution of the welding operator has occurred, one or more of three factors was usually involved:

(1). An uninsulated electrode holder.

(2). Wet gloves and clothing.

(3). A fall.

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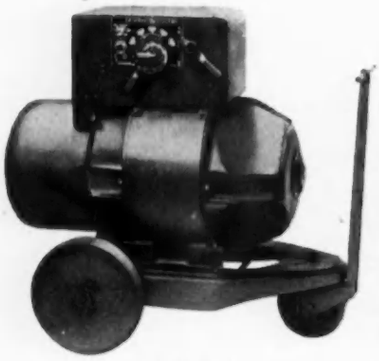

FIGURE 4
Single-operator portable motor-generator d-c arc welder.

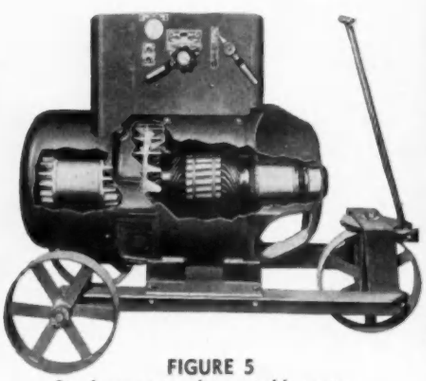

FIGURE 5
Single-operator d-c portable motor-generator arc welder in cutaway section.

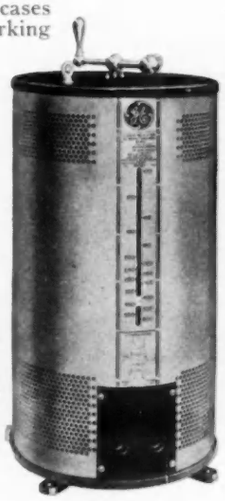

FIGURE 6
Arc-welding transformer.

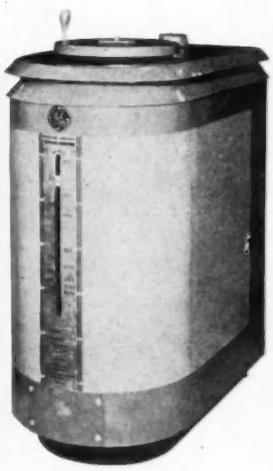

FIGURE 7
Outdoor arc-welding transformer.

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DRILLING FORECAST FOR 1946 . . . WELLS TO GO ON PUMP IN 1946 . . . CONSUMPTION TRENDS AND PROSPECTS . . . FOOTAGE DRILLED IN 1945 AND ESTIMATE FOR 1946 . . . 1945 PIPELINE CONSTRUCTION AND OUTLOOK . . . BARRELS PRODUCED BACK TO 1918 . . . U. S. CRUDE PRODUCTION FOR 86 YEARS . . . 1945 WILDCATTING AND 1946 PROSPECTS . . . OIL FOUND IN U. S. . . . 1945 OPERATIONS ABROAD . . . BALANCE SHEET FOR 1945 . . . PRODUCTION BY FIELDS . . . PRODUCING WELLS BY STATES . . . U. S. WELL COMPLETIONS

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Determining Minimum Cement Waiting Time

By R. FLOYD FARRIS, Stanolind Oil and Gas Company
Tulsa, Oklahoma

IT HAS long been known[1, 2, 3] that increased temperature accelerates the setting of cement and that earth temperatures increase appreciably with depth; nevertheless, field practice has been inconsistent in that longer waiting times have been customary for deeper cement jobs than for shallower cement jobs.

Basis of Method

To determine what strength the cement should have to support whatever amount of casing weight that might be applied to it, laboratory determinations were made with pieces of 5½-inch outside diameter casing, each set in cement inside of 9⅝-inch outside diameter pipe. Five-foot lengths of pipe were used in each case and standard cement slurry weighing 15.6 pounds per gallon was poured into the annulus of each unit to a height of four feet. The lengthwise bonding strength of the cement to the casing was determined at various time intervals by measuring the force which had to be applied to the end of the 5½-inch pipe to move it with respect to the outside or 9⅝-inch pipe. Each time the bonding strength of the cement in the annulus was tested, observations were also made of the strength of the cement briquettes and the progress toward the initial and final set.

These data, when shown graphically as in Figure 1, reveal that cement has an enormous bonding strength to the casing when it has begun its final set.

When these data are used to calculate the vertical length of casing represented by a weight equal to a given bonding strength, it is found that a given length of cement having reached a relatively low tensile strength at the beginning of its final set can support the weight of 100 to 200 times that length of uncemented casing.

Prediction of Cement Strength Development in Wells—First Method

In 1941, Stanolind Oil and Gas Company developed a method[(1)] of testing cements under simulated well conditions. The results obtained from these tests are called cement stirring time tests to 100 "poises" at simulated well depths. Table 1 is a tabulation of stirring time tests to 100 "poises" at various simulated well depths together with the data as to the time required to develop 8 psi tensile strength and the ratio of these times.

It will be noted that the ratio of the time to eight pounds per square inch strength to the time to 100 "poises" is fairly constant for any given cement under considerably different setting conditions. In order to take care of the extreme cases, the largest ratio, or three, is to be used.

Prediction of Cement Strenth Development in Wells—Second Method

Laboratory tests made to determine the time of maximum temperature for cement slurries at various simulated well conditions showed that the greater the depth, the quicker the cement reaches the maximum temperature.

A plot of the stirring time of various cements at various temperatures and pressures versus the time to maximum temperature development is given in Figure 2 and suggests that, knowing the stirring time to 100 "poises", one can multiply that time by a factor (K) which is more than one but less than two, and predict the approximate time when the cement in wells will reach the peak temperature.

Field tests were therefore made to determine when cements in wells actually reach peak temperature and to determine how this is related to laboratory tests of stirring time to 100 "poises". Field tests showed that this ratio is slightly more than two.

Since the difference between laboratory tests and the field tests is not great, it is considered that an average factor (K) of two may be adopted. The various relationships of time described above may therefore be written in equations as follows:

$$T_{8\ psi.} = T_{Min.\ WOC} \quad (1)$$

$$T_{Min.\ WOC} = T_{100\ "poises"} \times 3 \quad (2)$$

$$T_{Max.\ Temp.} = T_{Max.\ csg.\ Press.} \quad (3)$$

$$T_{Max.\ csg.\ press.} = T_{100\ "poises"} \times 2 \quad (4)$$

Therefore,

$$T_{Min.\ WOC} = T_{Max.\ csg.\ press} \times 1.5$$

where:

$T_{8\ psi.}$ = Time from mixing cement to a tensile strength of 8 psi.

$T_{Min.\ WOC}$ = Minimum waiting on cement time

$T_{100\ "poises"}$ = Cement well simulation stirring time test to 100 "poises" (Pressure con-

This article is a digest of a paper entitled "Method for Determining Minimum Waiting on Cement Time," which was presented before the American Institute of Mining and Metallurgical Engineers meeting in Tulsa during October, 1945.

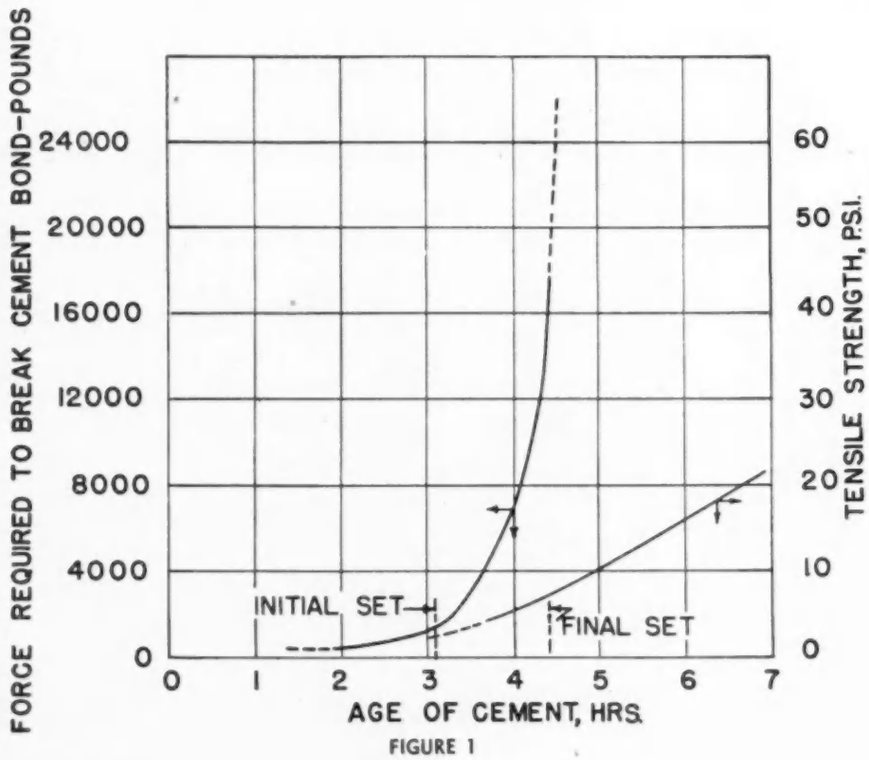
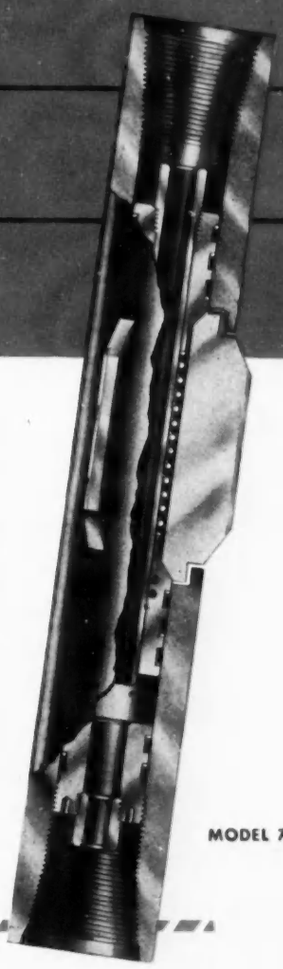


FIGURE 1

GRANT HYDRAULIC CASING SCRAPER

PRESSURE CONTROLLED SCRAPING ACTION (AN EXCLUSIVE GRANT FEATURE)

ASSURES COMPLETE REMOVAL OF CEMENT, MUD, SCALE AND BURRS FROM INSIDE OF CASING



MODEL 7447

The inside surface of the casing is clean and smooth for all future work. Packers and swabs can be set or operated without damage to the rubbers and cement retainers can be run properly. When drilling out after a cement job include a GRANT HYDRAULIC CASING SCRAPER directly above the bit. It embodies exclusive GRANT features that promote a cleaner, more efficient job—it is hydraulically operated by pump pressure from the rig floor, thus providing any degree of pressure of the scraping blades on the inside of the casing. "Chattering," "bouncing" and inefficient scraping action are eliminated. Another factor of extreme importance is that the scraping blades remain in a collapsed condition while running in the hole, and are expanded by pump pressure only when scraping operation is to be started. The blades are sharp and free from wear when scraping begins—an assurance of a cleaner, more efficient job.

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sistometer; Standard test procedure)

[T]Max. Temp. = Time to maximum temperature development in cement

[T]Max. csg. press. = Time to maximum shut-in pressure on casing.

Field Tests

Having arrived at the foregoing correlations, it was decided to make further field tests to verify these relations. Wells were selected in various areas and at various depths and with different types of cement. These field tests showed by drilling rates that the cement had passed the final set and, therefore, had attained a tensile strength of at least 8 psi. as predicted by laboratory tests. Reasonably close agreement was found between the time to maximum pressure on the casing and the time to 100 "poises" times two. These data show that cement tests can be made in the laboratory which will predict the approximate stiffening time of cement in wells.

In cases where drilling was delayed, there was still proof of the strength of the cement in the fact that it would not back-flow when the pressure was released, in cases where float equipment was not used.

Test Findings

In a shallow job at Sour Lake, the low temperatures could be expected to give the slowest curing time of any of the field tests, but the cement supported the entire weight of the casing and blowout preventers and, after drilling into it a few feet, the cement was found capable of supporting all of the weight of the drill pipe, kelley, and swivel without "washing" out during six minutes of full rate circulation.

The tests indicate that basing WOC time on the time to maximum casing pressure times a factor is fundamentally sound and applicable to field practice. It would appear that this is an appropriate fundamental engineering basis for field rules for determining proper waiting on cement time. The time to maximum shut-in casing pressure reflects the individual conditions of the wells as they involve the particular type of cement used. The multiplier 1.5 establishes a time to a suitable minimum strength.

The overall average waiting on cement time on Stanolind Oil and Gas Company properties has been approximately 51 hours per casing cement job. This includes practices in areas where no regulations exist. The overall average WOC time indicated by the method proposed in this paper is estimated to be approximately 15 hours per cement job. This suggests a saving of 36 hours per job. However, considering time required for changing equipment, and estimating that the plug cannot easily be drilled out before 21 hours, there is still a possible net saving of 30 hours per cement job. Translating this into rig time at $20 per hour, and considering two casing jobs per well, there is a possible saving of $1200 per well. Realizing that over 24,000 wells were drilled in the United States in 1944, one can appreciate how reducing WOC time can benefit the industry.

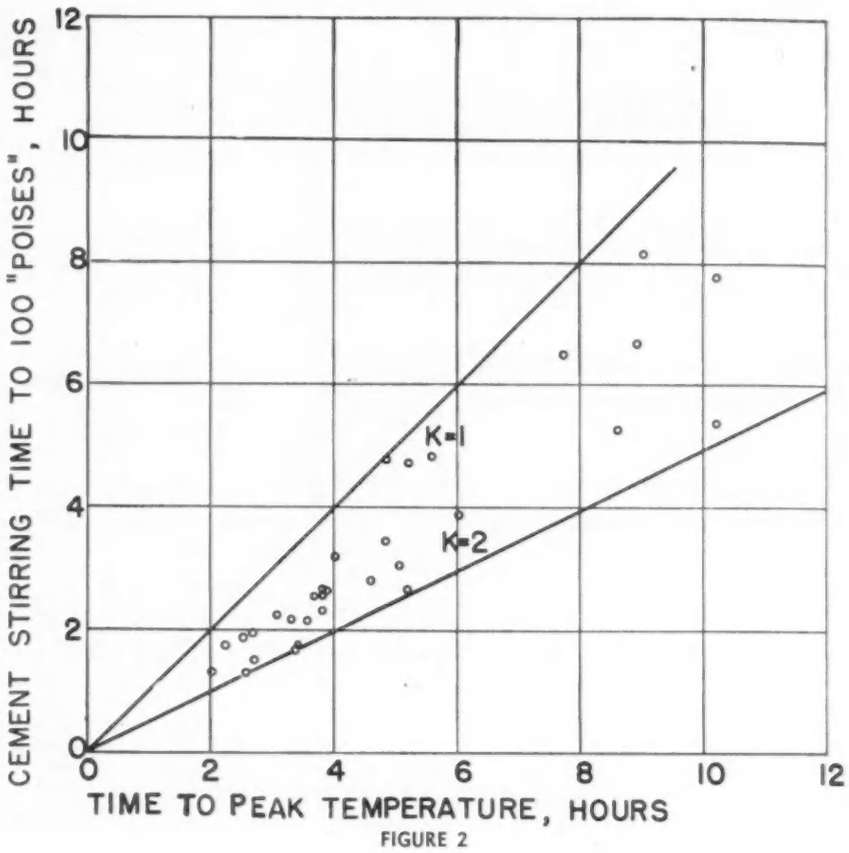

FIGURE 2

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[3] R. W. French: "Geothermal Gradients in California Oil Wells," Drilling and Production Practice, A.P.I., New York, 1939.

TABLE 1

Type of Cement	Well Depth Simulated, Feet	Stirring Time to 100 "Poises" Hours	Time to 8 psi. Tensile Strength Hours	Time to 8 psi. Time to 100 "Poises"
Standard	2000	3.5	5.4	1.54
	4000	3.0	3.8	1.27
	6000	2.5	2.9	1.16
Slow Set A	8000	4.0	8.5	2.12
	10000	3.4	8.0	2.35
	12000	3.0	7.9	2.63
Slow Set B	6000	3.7	10.6	2.86
	8000	3.1	9.3	3.0
	10000	2.5	7.5	3.0
Slow Set C	6000	4.0	10.1	2.52
	8000	3.1	8.8	2.84
	10000	2.6	7.8	3.00
Slow Set D	6000	3.7	6.5	1.75
	8000	3.3	5.2	1.57
	10000	4.4	5.4	1.23

J. H. Dunn Named President Of Shamrock Corporation

J. H. Dunn of Amarillo, Texas, was elected president of The Shamrock Oil and Gas Corporation in Pittsburgh December 10. Dunn, who has been vice president and general mainager since 1938, succeeds H. C. Fownes II of Pittsburgh, who is retiring after disposing of his stock holdings.

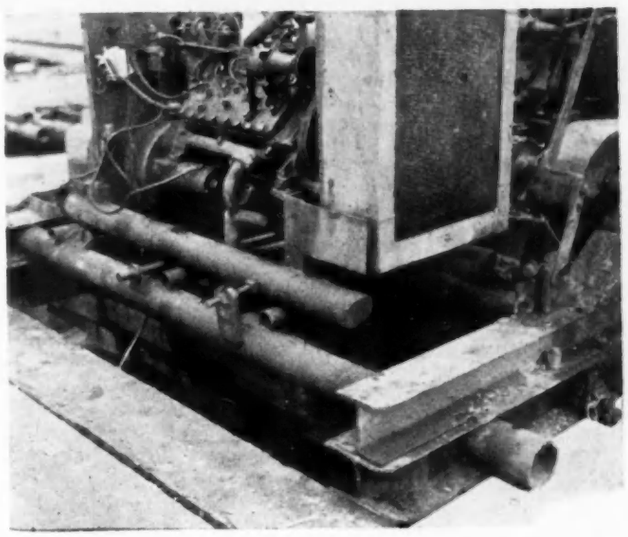
Upon graduation for Texas A. & M. College in 1926, Dunn joined Lone Star Gas Company, which he left in 1938 to become general manager of Shamrock. Dunn is president of the Natural Gasoline Association of America; director of the Independent Natural Gasoline Association, the Independent Petroleum Association of America, and the Panhandle Producers and Royalty Association. He served as a member of the Petroleum Industry War Council.

Ray C. Johnson of Amarillo was elected secretary-and treasurer of Shamrock and will also continue as general counsel and director.

Newly elected members of the board of directors replacing Wm. C. Fownes, Jr., H. C. Fownes II and Thomas Morrison, who resigned as a result of selling their interests in the coporation are Laurence M. Marks, New York; Frank R. Benton, Pittsburgh, and Ross D. Rogers, Amarillo.

Highly Unitized Engines, Special Hanger Mounts

Cut Rig Down Time

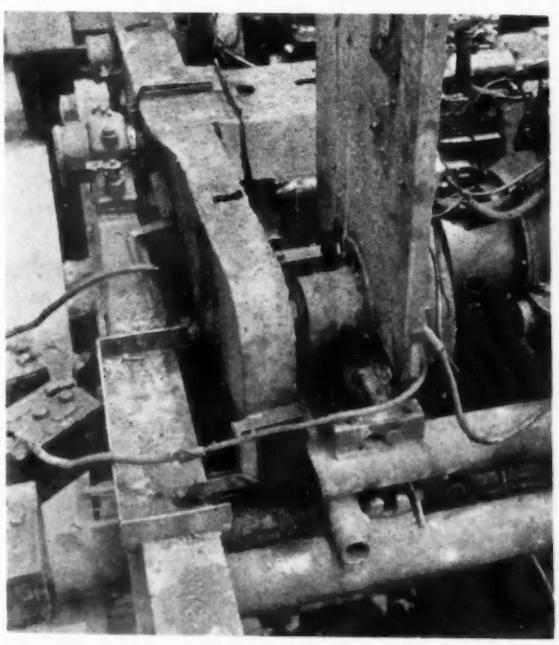


Unitized, skid-base equipped drilling engines may be replaced as complete units saving considerable rig down-time. Disengaging drive sprocket and loosening retainer studs (shown beside engine skid) permits entire unit to be hoisted out.

By GILBERT M. WILSON, Staff Writer

TO ACHIEVE a maximum degree of portability and accessibility in the bank of engines driving a light drilling rig, one contractor has developed a few simple shop-made short-cuts that make it possible to remove or replace any engine individually within a matter of a few minutes. Each engine is mounted as a self-contained unit on a skid base made of two lengths of three-inch pipe, the entire unit resting upon several light lateral supports welded across the top of the main base which carries the draw works equipment.

Resting upon these cross pieces and held down primarily by its own weight, the engine mount is held firmly in place against lateral strains by a slotted lug and bolt system. Welded to the side of the sub-base, these heavy lugs provide back-up for horizontal threaded studs which are screwed up tightly against the sides of the skid bases and locked in place by heavy square nuts. To remove the engine and its skid base from the rig it is necessary only to loosen the retaining studs, disengage the sprocket from the tandem drive chain, and hoist or skid the unit out. A replacement engine with identical base dimensions may be dropped into place with equal ease, resulting in the shut-down of the rig for only a relatively few minutes, following which the old engine may be repaired at leisure.



Rear motor mounts consist of special blocks providing choice of two positions. Removal of cap screws and levering yoke bar into rear set of holes facilitates access to clutch assembly for minor repairs.

A minor in-place repair job that frequently must be made during temporary shut-downs of the rig is that of taking up or repairing the clutch. Ordinarily a hard-to-reach portion of the engine, the clutch housing often must be partially removed or backed off. This normally entails considerable work, but to simplify this type of job, provision was made in the rear engine mount for shifting the housing back on the shaft a short distance to facilitate getting into the clutch assembly. Welded to the top of each of the skid members is a rectangular block of cold-rolled steel having cut in its surface two half-round grooves designed to support a U-shaped round bar yoke hanger which is welded to the rear of the engine housing as shown in the illustration. A similar plate or cap having identical matching grooves cut in it fit over this welded pad and is secured with two cap screws. Normally, the engine supporting yoke rests in the forward groove where it is held in place by screwing the cap screws down tightly. Whenever the clutch is being worked on, housing bolts are first removed and the rear assembly then barred over into the second set of grooves. In this position the engine is still safely supported as well as perfectly aligned on the shaft, yet affording access to the parts being worked upon.

This method of handling, exchanging and repairing the unitized engine units has been instrumental in cutting down field costs caused by rig down-time, with corresponding increases in profit on each hole drilled.

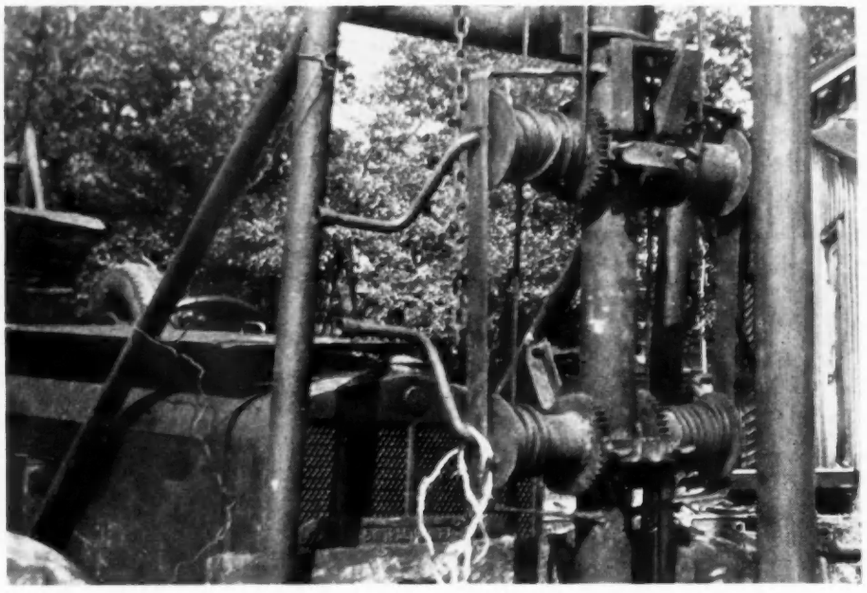
Mast-Mounted Drums Carry Inboard Ends of Guys and Facilitate Adjustment

SERVICING EQUIPMENT

To facilitate the adjustment of guy lines to bring the crown block over the center of the hole and at the same time provide a storage space for the guy lines when the unit is being moved, one operator winds them on reels at the bottom of the gin pole. On this particular unit, the gin pole is carried on a frame above the body of the unit and is swung down in front by means of a windlass arrangement, thus raising the mast. The guy wires pass through sheaves at the top of the pole and out to anchors which have been placed at four sides of the well, the other ends of the wire lines fastened to drums mounted as shown.

The drums are constructed of 6-inch pipe with a gear welded on one side and a smooth iron disk welded on the other. The proper tension is held on each guy line by cranks which are attached to the drum and by tightening thumb screws down into the space between the gear teeth to dog the device.

The saving of time in rigging up and tearing down is well worth the time and materials necessary to assemble this unit and the added advantage of having a place to keep the guy wires out of the way on the road makes this a most desirable arrangement.



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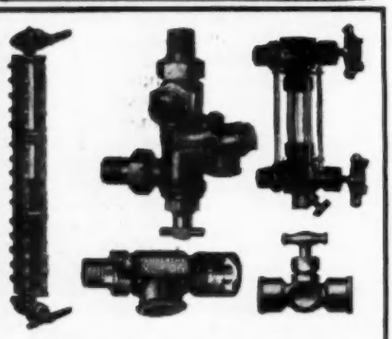

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See Pages 2450 to 2455, Composite Catalog.

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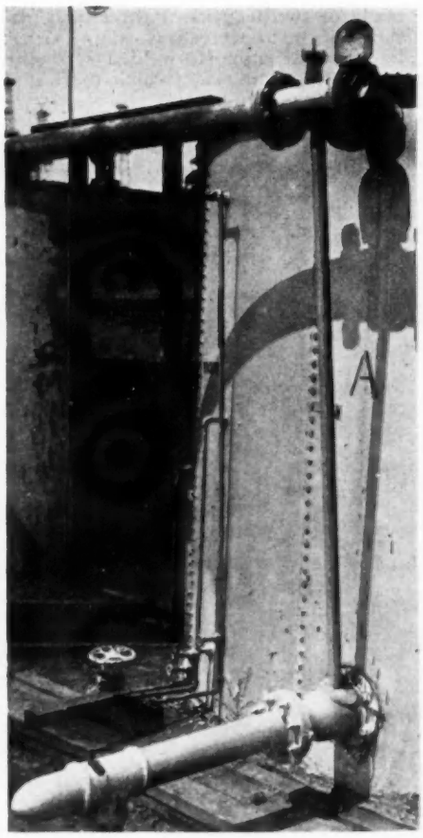
Connecting Strut Transfers Load of Upper Line

TANK LINES

Contributing to the accelerated weakening and ultimate breakdown of tank flanges is the weight of heavy tees and valves together with the constant vibration of the oil inlet lines caused by turbulence and "heads" of oil and gas. One operator eliminates much of this trouble by arranging the fittings so that outlet flanges lie directly below the inlet fittings, permitting the installation between them of a stilt which tends to dampen vibration as well as support the weight of the upper fitting. The stilt is a single length of light pipe which has welded to each end a small metal shoulder pad which fits the curvature of the fittings as shown.

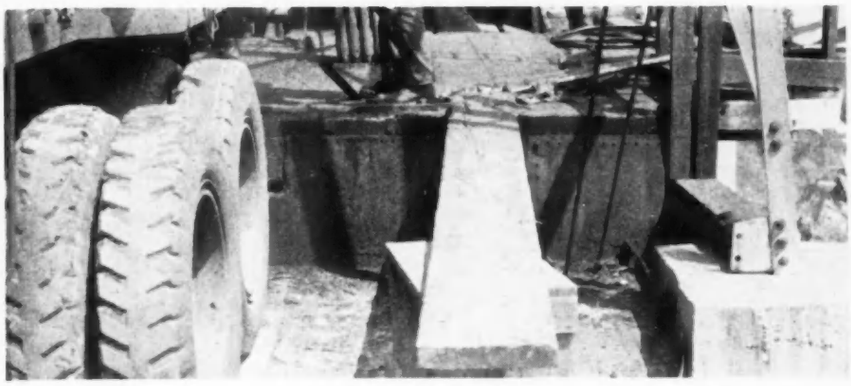
The outlet oil line, because of its going underground a short distance away from the side of the tank, is sufficiently rigid to support the upper fitting without injuring the flange connection into the tank. By cutting the stilt to such a length that there will exist a slight compressional strain in the support, vibrations in the upper inlet line are effectively dampened.



$5.00 is paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, P. O. Box 2608, Houston 1, Texas

PRODUCTION HINTS

Salvaged Tank Plate Forms Retaining Wall

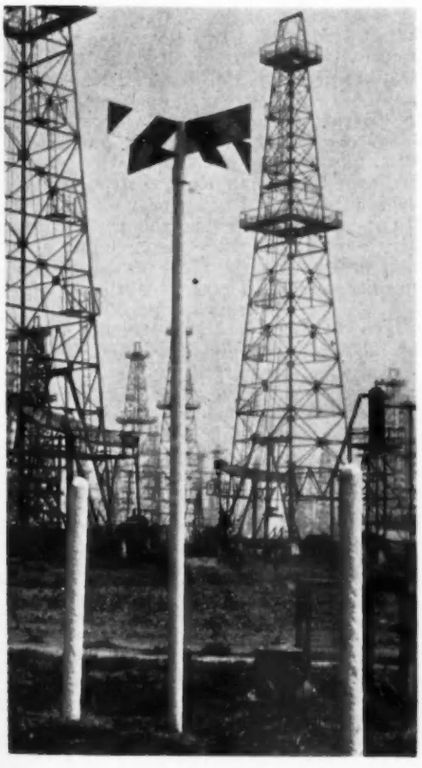


WELL HEAD FOUNDATION

Posing a difficult problem to producers having wells in extremely precipitous country is the matter of building roadways to and around the various wells for efficient servicing with portable truck-mounted units. One operator found it economical and expedient to use discarded tank side plates and miscellaneous scrap piping as retaining walls for filled-in driveways. Ordinarily, concrete and other expensive reinforced retaining walls are used in supporting fills around the well, but with this simple method, both time and costly materials are saved and clearance improved.

In the typical case illustrated, the cellar was closed off on the fill side with sheets of flattened siding, the material being nailed and bolted to posts and edge of the derrick flooring. Excellent service has been obtained from this material. It is simple to install, the bolt holes already existing in the material providing a convenient means of tying the sheets together. Properly retained and filled in, the driveway will support the heaviest pulling units and will give as good service, at much less cost, as either the building of costly concrete walls or bulldozing out hillsides for additional driveway space.

Sign Post Indicates Fire Plug Location



FIRE-FIGHTING EQUIPMENT

In one closely-drilled field, one company makes special efforts to advertise the presence of fire plugs and fire apparatus so that from almost any road within the lease, a man can see at a glance where such emergency equipment is located. Indicating presence of a nearby fire plug, the typical example shown is a high post of 2-inch pipe which is erected as close as possible to the intersection of major lease roads. Atop the post is a four-armed metal flag painted with bright red and white diagonal stripes. It can be seen from a considerable distance and is distinguishable from any direction. It is mounted somewhat higher than usual so as to permit its being seen over the tops of automobiles, trucks or other obstructions in the field. In case of a fire occurring at night, the post is easily recognizable through its being painted a brilliant white.

In a field where wells, tanks and pipelines are so close together, the few seconds lost in trying to locate a fire hydrant or piece of equipment can spell the difference between a minor and major loss. This slightly more expensive type of field flagging is worth the cost.

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Houston Contractor Laying Texas Line for Sun Company

J. R. Horrigan Construction Company, Houston, is laying a trunk line for Sun Pipe Line Company from several Southwest Texas fields already linked by gathering systems to a tanker terminal at Harbor City, near Corpus Christi.

The contract calls for 84 miles of 10-inch pipe from the Seeligson area near Premont to Aransas Pass, and 34 miles of eight-inch pipe from the Kelsey-Bass field in Brooks County to the Sullivan-Mariposa area in Jim Wells County.

43-Mile South Texas Gas Line Put in Operation

The 43-mile natural gas line laid by Glenn H. McCarthy from the Winnie field, Chambers County, Texas, to the DuPont plant at Orange, Texas, is being placed into operation.

The line consists of 20 miles of 10¾-inch and 23 miles of 12¾-inch pipe. J. R. Horrigan Construction Company, Houston, was the contractor.

Humble to Take Up 41 Miles Of South Texas Carrier

Humble Pipe Line Company is preparing to take up five sections of eight-inch pipe totaling 41 miles on its Satsuma-Webster carrier in Harris County, near Houston. The company will relay 16½ miles of 12-inch pipe and 8½ miles of eight-inch pipe on the same line.

Texas Group Makes Plans To Fight Pact Ratification

The recently formed Texas Statewide Committee of Oil Operators opposed to Senate Ratification of the Anglo-American Petroleum Agreement plans to present numerous witnesses during hearings on the treaty before the Senate Foreign Relations Committee in the latter part of January, D. W. Hovey, Houston independent oil operator and chairman of the committee, has announced.

"We will present testimony which will show that the present treaty, like the one withdrawn under fire from the Senate last January, is a step toward placing the American oil industry under control of an international body and a first move in opening the American market to huge quantities of foreign oil from the Middle East, with tremendous economic losses to American oil producers, refiners, land owners and the millions of persons in this country dependent directly or indirectly upon production of petroleum for a livelihood," Hovey declared.

He challenged the contention of treaty advocates that "opposition in the oil industry is insignificant or non-existent."

"We will refute that contention," he said, "by producing witnesses representing a substantial segment of the oil industry, including both independents and representatives of major companies.

"We also intend to present as witnesses elected state officials concerned with oil regulation and public education who will reiterate before the committee their already expressed strong opposition to the treaty."

Humble Announces Changes In Production Personnel

Changes in the supervisory forces of the production department of the Humble Oil & Refining Company have been announced.

C. M. Vardaman, Talco District Superintendent, was transferred from the Talco, Texas, district to the Stratton district, Kingsville, Texas. Henry W. Roberson, assistant Pickton District Superintendent, Pickton, Texas, was promoted to district superintendent and transferred to the Navarro Crossing district. V. O. Harris was promoted to Talco District Superintendent, Talco, Texas.

James H. Galloway, returned from military leave, was transferred from the Kelsey district, Santa Elena, Texas, to the Sullivan district, Encino, Texas, as district superintendent.

Oliver L. Furse, district petroleum engineer, Hobbs District, Hobbs, N. M., was transferred to the Pickton District, Pickton, Texas, as assistant district superintendent.

William A. Castille was appointed assistant division civil engineer for the Louisiana division, New Orleans. Murray A. Cunningham, district civil engineer, Natchez district, Natchez Miss., returned from military leave. John S. Hacker was promoted to district civil engineer, North Crowley district, Crowley, La.

Bailey S. Hyden was promoted to district civil engineer, Lovell Lake district, Beaumont, Texas. William E. Neill was promoted to district civil engineer, Paradis district, Paradis, La.

Charles E. Ullrich, civil engineer, Katy gas plant, Katy, Tex., was transferred to the North Katy district, Katy, as District Civil Engineer. Don F. Shaw, district petroleum engineer, returned from military leave and was transferred from the Government Wells district, Freer, Texas, to the Flour Bluff district, Corpus Christi, Texas.

Tom E. Beaird, Jr., petroleum engineer, East Texas division office, Tyler, Texas, was transferred to the Navarro Crossing district, Palestine, Texas, and promoted to district petroleum engineer. Harold M. Davidson, assistant district chief clerk, Talco District, Talco, was transferred to the Navarro Crossing district, Palestine, and promoted to district chief clerk.

Tax Forum Interest High

Advance inquiries indicate a rather large attendance at the annual Ad Valorem Tax Forum of Mid-Continent Oil & Gas Association which will be held at the Blackstone Hotel, Fort Worth, January 17-18, according to Clarel B. Mapes, general secretary.

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Gasoline Stocks Increase Sharply as Refiners Step Up Crude Runs to Stills

United States crude runs to stills were increased sharply during the week ended December 29, although crude production decreased slightly, and there was a comparatively large accumulation of gasoline in storage. These trends were reflected in the latest weekly reports to the American Petroleum Institute.

Production of distillate fuel oil was increased, but heavy seasonal drawing on stocks continued. Residual fuel oil production also was higher than in the previous week, and nearly a million barrels of that product went into storage.

Refinery runs of U. S. plants averaged 4,729,000 barrels daily, up 218,000 from the week before although 99,000 a day or 2.1 percent under the runs in the comparable week a year ago.

Crude oil production of the country averaged 4,474,000 barrels per day, down 6000 from the previous week and much less than refinery runs. The new production rate was 232,000 barrels a day or about 5 percent under output in the like week a year ago. Crude oil stocks totaled 220,288,000 barrels on December 22, the Bureau of Mines reported. At that level they were about 2 million barrels below a year previously.

Production of gasoline totaled 14,546,000 barrels in the week of December 29, down 222,000 from the week before and 643,000 barrels or 4 percent less than output in the corresponding week a year ago. Stocks of finished and unfinished gasoline increased during the week by 3,335,000 barrels and then totaled 95,205,000 barrels. That amount was within 4,000,000 barrels of the peak that was reached last spring. It was 8,356,000 barrels or 9.6 percent more than the 86,849,000 barrels held December 30 a year ago.

Distillate fuel oil production of 5,055,000 barrels during the week was 347,000 barrels more than in the previous week and 844,000 barrels or 20 percent more than the 4,211,000 barrels produced in the comparable week a year ago. Stocks were drawn down, however, by 2,268,000 barrels during the week and then totaled 36,651,000 barrels. That amount was about 2 million barrels or 5 percent less than the 38,715,000 barrels held December 30 a year ago.

Residual fuel oil production totaled 8,765,000 barrels in the week ended December 29, an increase of 226,000 barrels over the amount turned out at refineries in the previous week but 737,000 barrels or 7.8 percent less than the production of 9,502,000 barrels in the like week a year ago. Stocks of residual rose 968,000 barrels during the week to 42,447,000 barrels. That quantity was 14,487,000 barrels or 25.4 percent less, however, than the 56,934,000 barrels on hand December 30 a year ago.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod.		Runs to Stills		Crude Stocks		Gasoline Stocks		Gasoil and Distillate Stocks		Residual Fuel Oil Stocks	
	Barrels Daily	Week Ended	Barrels Daily	Week Ended	Barrels	Week Ended	Barrels	Week Ended	Barrels	Week Ended	Barrels	Week Ended
Highs:												
1941	4,337	11–22	4,120	10–18	266,187	3–29	99,727	3–29	[1]54,983	11–15	102,448	1– 4
1942	4,337	2– 7	3,961	1– 3	263,208	3–28	[1]109,281	3–14	47,861	11–14	95,857	1– 8
1943	4,436	11–13	4,331	12– 4	245,752	5–29	94,159	3–20	47,187	11–27	72,881	1– 2
1944	4,762	9–30	4,798	12–30	240,992	1– 1	89,162	4– 1	48,162	10–28	64,744	10– 7
1945	[1]4,944	7–14	[1]5,140	8–18	227,554	10–13	99,012	3–24	45,341	11–17	56,074	1– 6
Lows:												
1939	[3]1,601	8–26	3,125	2–18	[2]229,127	10–12	71,152	10– 7	20,722	4–15	105,397	4– 3
1941	3,364	1–11	3,490	1–18	240,399	11–15	79,923	10– 4	28,382	4–12	90,914	7–13
1942	3,297	7– 4	3,393	5–23	231,896	12–12	75,934	12– 5	29,240	4–25	72,962	12–26
1943	3,821	1– 9	3,579	3–18	232,191	1– 9	68,182	10–16	30,732	4– 3	57,596	12–25
1944	4,357	1– 1	4,228	2–12	220,258	9– 9	76,302	1– 1	30,232	4–19	49,737	3–18
1945	3,621	10– 6	3,409	10– 6	[4]211,813	8–25	70,791	10–13	26,483	3–17	38,548	5–26

TRENDS OF 1944 AND 1945

Trends in Week Ended:	Crude Oil			Gasoline		Gasoil and Distillate		Residual Fuel	
	Production Daily	Runs to Stills Daily	Stocks Week End	Production Weekly	Stocks Week End	Production Weekly	Stocks Week End	Production Weekly	Stocks Week End
1944:									
January 1	4,357	4,453	240,992	13,192	76,302	4,575	42,310	9,141	57,380
January 29	4,400	4,359	240,251	13,427	81,075	4,054	37,266	8,899	52,857
February 26	4,423	4,377	237,137	13,183	85,248	4,558	33,766	8,952	51,387
March 25	4,385	4,443	236,285	13,362	87,287	4,979	31,319	9,018	51,669
April 1	4,383	4,435	234,667	13,824	89,162	4,450	30,530	8,367	51,326
April 29	4,431	4,300	235,342	13,126	88,342	4,284	30,236	8,398	49,985
May 27	4,514	4,532	234,423	13,502	86,468	4,702	32,035	8,568	49,812
July 1	4,587	4,638	228,860	14,052	83,559	4,496	35,360	8,872	52,235
July 29	4,608	4,627	225,112	14,115	82,665	4,833	38,135	8,900	56,280
August 26	4,667	4,698	222,931	14,112	80,740	4,566	41,453	8,680	59,839
September 30	4,762	4,775	222,393	14,494	78,028	4,622	45,329	9,292	64,226
October 28	4,740	4,658	223,235	14,117	79,058	4,772	48,705	8,985	64,382
December 2	4,712	4,693	221,591	14,853	80,427	4,082	45,832	8,981	61,727
December 9	4,704	4,552	220,258	14,611	80,880	4,056	44,430	8,923	60,458
December 16	4,695	4,537	222,075	14,145	82,747	4,353	42,413	8,727	59,280
December 23	4,729	4,682	222,575	14,635	83,355	4,605	40,846	8,798	58,509
December 30	4,705	4,798	222,998	15,342	86,614	4,257	39,495	9,156	57,430
1945:									
January 27	4,727	4,756	221,310	14,957	88,223	4,843	33,561	9,252	51,119
February 24	4,777	4,803	219,351	15,500	95,972	4,958	28,753	9,084	46,713
March 31	4,781	4,677	223,782	14,644	98,758	4,548	26,889	9,184	41,745
April 28	4,805	4,780	223,474	14,633	94,068	4,636	28,273	9,379	39,813
May 26	4,887	4,950	222,831	15,194	89,121	4,667	29,184	9,670	38,548
June 2	4,859	4,804	224,079	15,317	88,696	4,857	29,819	9,437	39,022
June 9	4,853	4,827	221,552	15,256	78,896	4,842	30,339	9,382	38,996
June 16	4,888	4,915	221,932	15,132	87,504	5,342	30,397	9,252	39,482
June 23	4,898	5,002	220,974	15,367	87,462	5,014	31,761	9,558	39,893
June 30	4,903	4,999	220,781	15,546	86,472	4,910	32,213	9,077	40,488
July 7	4,886	5,006	217,250	15,082	86,329	4,785	33,667	9,238	40,754
July 14	[1]4,944	4,945	216,355	15,349	85,401	5,197	34,804	9,337	41,489
July 21	4,944	4,927	218,108	15,430	85,930	5,090	35,458	9,071	42,480
July 28	4,930	4,996	218,507	16,106	86,008	4,598	36,071	9,586	42,283
August 25	4,892	4,931	[4]211,813	15,986	84,693	4,960	39,782	9,356	46,201
September 29	4,357	3,812	222,387	11,913	79,552	3,940	43,689	7,047	46,853
October 27	4,273	4,838	224,230	15,530	74,335	5,159	43,472	8,691	45,943
November 24	4,469	4,648	219,363	15,681	83,184	4,802	45,258	8,800	47,474
December 8	4,459	4,473	218,355	14,908	87,004	4,669	42,406	8,545	44,743
December 15	4,515	4,562	219,518	14,644	89,043	4,905	40,968	8,107	42,962
December 22	4,480	4,511	220,288	14,768	91,870	4,708	38,919	8,539	41,479
Dec. 29, 1945	4,474	4,729	.....	14,546	95,205	5,055	36,651	8,765	42,447
Dec. 30, 1944	4,706	4,828	[5]222,575	15,189	86,849	4,211	38,715	9,502	56,934
Change:									
In week	—6	+218	+770	—222	+3,335	+347	—2,268	+226	+968
In year	—232	—99	—2,287	—643	+8,356	+844	—2,064	—737	—14,487
In year	—4.9%	—2.1%	—1.0%	—4.2%	+9.6%	+20.0%	—5.3%	—7.8%	—25.4%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, December 23, 1944.

California Standard Will Help Develop Gilsonite

The world's only known important source of gilsonite, a little-known hydrocarbon capable of many uses, will shortly be under intensive development by a new company announced jointly last week by Standard Oil Company of California and The Barber Asphalt Corporation.

The gilsonite fields, in eastern Utah and western Colorado, have heretofore been owned by The Barber Company, with headquarters in New York, but will now be owned and operated by American Gilsonite Company, equally owned by Barber and Standard. American's holdings comprise the greater part of the known reserves in the Utah-Colorado area.

☆ Oklahoma

Seminole County Wildcat Has 280-Barrel Flow on Test

Seminole wildcat flows 280 barrels; Deep Rock completes West Billings pool opener; Stanolind strikes east of Boise City; gas field hit in Okfuskee County; Atlantic finals small pool opener northwest of Shawnee.

Seminole County: J. E. Crosbie, Inc., Tulsa, gave the county one of its best discoveries of the year at Mathis 1, SE NW SW 35-6n-5e, wildcat about 1¾ miles southeast of the West Konawa pool. On a well-defined structure that may extend and link up with West Konawa, the discovery was completed in the Senora sand between 2213-39 feet to flow 280 barrels of oil on initial 24-hour production test. Total depth is 2229 feet.

Noble County: A hot play west of the old Billings pool is under way following Deep Rock Oil Corporation's successful completion of White 1, SW NE NE 19-23n-2w, pool opener for the new West Billings area, completed from the Ordovician for an estimated daily oil flow of approximately 1000 barrels. Evidence of a pool opener was given late in November when the wildcat showed for 12 million cubic feet of gas on drill-stem test between 4415-27 feet. Operator drilled 23 feet deeper to complete in the Wilcox sand between 4434-50 feet, total depth.

Cimarron County: A third discovery for the Oklahoma Panhandle area was chalked up at year's end with the successful completion of Stanolind Oil & Gas Company's Schonwald 1, CNE NE 21-3n-8ecm, which is shut in for lack of market after showing for more than 1½ million cubic feet of gas per day from Basal Pennsylvanian sand between 4802-12 feet. The wildcat is approximately 12 miles south and east of The Pure Oil Company's 2 oil strikes on the Keyes structure.

Okfuskee County: Approximately 6 miles north of the Paden pool, Fred C. Summers has proved another small structure to open a gas field at Aldridge 1, SW SE NE 21-13n-7e, Pettiquah area. Production, estimated at 5 million feet of gas per day, is from Prue sand, which was shot between 2776-2842 feet. Top of the sand was logged at 2762 feet.

Lincoln County: A discovery of dubious worth is The Atlantic Refining Company et al's Young 1, NW SW NW 32-12n-3e, about 7 miles northwest of the Shawnee Townsite pool. While a well defined structure was worked out to indicate an anticline which may cover half a section or even more, production tests were disappointing, the wildcat being completed for an estimated 20 barrels of oil daily on the pump from Bartlesville sand through perforations between 4855-72 feet. Scarcely commercial, operators are considering plugging the hole.

Osage County: A. G. Oliphant has extended the Big Bend pool ½ mile west at Osage 2, SW SW SW 21-25n-3e, completed from Layton sand between 2851-55 feet and good for 50 barrels of oil daily on the beam. The strike is not far from a quarter section which was leased by Continental Oil Company for $40,000 and on which 2 dry holes have zeen drilled.

Garvin County: Globe Oil & Refining Company's Gibson 1, CSE NE 30-2n-2w, prospective pool opener about 5 miles southwest of the Antioch pool, is drilling in the Viola below 7211 feet. The test is being closely watched following a drill-stem test which recovered an estimated 6 million cubic feet of gas per day and flowed oil into pits after the tool had been opened 25 minutes.

Ashland Opens Offices

Ashland Oil & Refining Company has opened a production division at Henderson, Ky., with C. B. Russell and Floyd F. Dobbs in charge. The company also has established an office at Grayville, Ill., to cover the Illinois-Indiana area, with C. H. Duncan in charge.

☆ Kansas

Phillips County Test Has Lansing, Arbuckle Shows

Phillips County wildcat shows in Lansing, Arbuckle; Wichitans to test Anadarko Basin; Kingman County test disappoints; pipe set in wildcat southeast of Herzog; Meade County discovery tests oil, water; Swearer et al abandon Stafford County test.

Phillips County: Helmerich & Payne, Inc., encountered 1630 feet of oil on a 45-minute drill-stem test at Bowman 1, NW NW SE 3-5s-20w, wildcat 2¼ miles northwest of the Hansen pool. Good oil shows also were reported in the Arbuckle topped at 3374 feet and cored from 3380-87 feet, total depth. Oil recovered was from Lansing lime topped at 3101 feet. On the Arbuckle the wildcat is checking 36 feet higher than a dry hole drilled in SW SW SW 35-4s-20w.

Kingman County: Cities Service Oil

Wells Completed in United States in Week Ended January 5, 1946

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS This Week	Last Week	Cumulative This Year	Cumulative Last Year
Alabama									1	1	1	2	2	
Arkansas												5		
California	27	3		1	31				6	6	37	34	37	37
Colorado	1				1				1	1	2		2	2
Florida														1
Georgia														1
Illinois														49
Indiana														4
Kansas	27	3		13	43				5	5	48	40	48	27
Kentucky														18
Louisiana												26		20
North Louisiana												13		10
South Louisiana												13		10
Michigan	14	5		4	23			1	4	5	28		28	32
Mississippi	5				5				1	1	6	5	6	11
Montana	2				2		1			1	3	4	3	4
New Mexico				1	1				1	1	2	5	2	2
New York	15		10		25						25	25	25	25
Ohio	2	1			3						3	16	3	3
Oklahoma	35	4		13	52		3		6	9	61	56	61	39
Pennsylvania	27	5	15	2	49						49	45	49	47
Texas	51	4	1	12	68	1	6		17	23	92	231	92	97
E.Tex.Bor. Co.'s												7		
Rest of E. Texas	4				4				2	2	6	18	6	6
North Texas	19		1	4	24		2		4	6	30	77	30	29
W. Central Tex.	1	1		3	5				3	3	8	11	8	2
West Texas	14			1	15		2			2	17	67	17	31
Tex. Panhandle				1	1						1	7	1	1
G. Coast, Upper	3				3				2	2	5	12	5	8
G. Coast, Lower	9	2		3	14	1	2		4	6	21	25	21	10
Southwest Texas	1	1			2				1	1	3	5	3	10
S. Central Tex.									1	1	1	2	1	
West Virginia	2	8		3	13						13	11	13	9
Wyoming	2	1			3						3		3	3
Total U.S.	210	34	26	49	319	1	10	1	42	53	373	505	373	431

* Includes distillate wells. † Includes salt water disposal wells.

Company's Eck 1, SE SE NW 1-29s-10w, closely watched wildcat northwest of Willowdale, suffered a setback when operator recovered about 55 feet of thin mud in 30 minutes on drill-stem test in the Mississippi lime between 4250-59 feet. This test encountered some saturation and porosity in cutting at 4255-59 feet but the thin mud indicates the formation carries water. The wildcat was drilling at 4265 feet after finding fair porosity between 4259-65 feet.

Ellis County: Fred Manning is rigging up standard tools for a production test at Dreiling 1, SW SW SE 21-14s-16w, about 5 miles southeast of the Herzog pool, after logging a good oil show in the Arbuckle lime at 3380-88 feet, total depth. Manning has set production string and a potential test is scheduled early in January.

Wichita: Edwin Bradley and H. H. Patton have completed a deal that will give Dewey County, Okla., in the center of the Anadarko Basin, an important wildcat test. It is Green 1, CNW NW 6-17n-14w, which will be drilled by the Oklahoma Natural Gas Company. The Wichitans assembled a block of 16,000 acres which was assigned to the operators, with Bradley and Patton retaining a substantial interest.

Meade County: Stanolind Oil & Gas Company's H. C. Adams 1, SWC 7-35s-29w, about 5 miles east of the Adams Ranch pool and the operator's second wildcat on its 95,000-acre ranch, has been plugged back from 6338 feet to 6145 feet. Testing, which started in November, continues with the last report crediting the well with about 4 barrels of oil and a similar amount of water per day on the pump through perforations between 6018-40 and 6090-6125 feet. Mississippi lime was topped at 5845 feet and the initial production test resulted in 75 barrels of oil plus an equal amount of water daily on the pump. Further plugbacks and tests are scheduled and the well may be completed in the Mississippi section, producing horizon in the Adams Ranch pool to the west.

☆ New Mexico

Penrose-Skelly Field Has Second Find in Ellenburger

Second Ellenburger producer confirmed for Penrose-Skelly field; west sector of Drinkard field has failure; slow progress on Cooper-Jal field deep test is due to crooked hole.

Lea County: Humble Oil & Refining Company's Greenwood 8, south offset to the Ellenburger discovery in the Penrose-Skelly field, entered the Ellenburger at 7996 feet, or 57 feet low, and recovered 6550 feet of 37-gravity oil when tester was used at 7995-8032 feet. A later test at 803-75 feet proved dry, and the well will be cored to the second zone of porosity logged by the discovery. Greenwood 8 passed up flowing production from the 5200-foot Glorietta, but this zone may be erratic. Magnolia Petroleum Company's Brunson-Argo, northeast offset to the Ellenburger discovery, was drilling at 7350 feet, having tested a show of gas with water in the 5200-foot Glorietta, but indicated oil production in the 6400-foot Yeso. Magnolia's Brunson-Argo 10, east offset to the discovery, was drilling lime at 3925 feet.

Humble's Cooper 1, depleted 3500-foot producer in the Cooper-Jal field and deepening to the basal Yeso, was drilling dry lime at 6715 feet, having difficulty with crooked hole.

☆ West Texas

Deep Ellenburger Pay Hit On Southeast Side of TXL

Deep-seated Ellenburger producing area uncovered on southeast side of TXL field; plugged-back Ellenburger discovery in Fullerton-Devonian field makes prolific flow; Devonian strike on tap for Crane County.

Ector County: The Texas Company's T. P. Land Trust-Fraser 1-D, C SW NW T&P 27 and a mile southeast of the most southeasterly Ellenburger producer in the TXL field, scored a surprise in showing for an oil producer in Ellenburger, topped at 10,750 feet, or 1217 feet low. A drill-stem test at 10,721-75 feet returned gas to surface within 80 minutes and recovered 1500 feet of 42-gravity oil and 275 feet of oil and gas-cut mud. No water was evident, while shutin bottom-hole pressure was calculated at 5300 pounds. The gas volume was negligible.

In view of the company's extensive lease protection north and south, the well will be carried to water to ascertain pay thickness. Core at 10,775-90 feet recovered only 1 foot of fractured dolomite, which was oil-stained and porous. The test was drilling dolomite at 10,808 feet. Low structural position was recorded before leaving the Permian. The Devonian, which showed fair prospects for oil production, was entered at 8509 feet, or 814 feet low to the nearest Ellenburger well, while the Silurian, topped at 9230 feet, correlates 1225 feet low. This deep producer correlates 298 feet low on the Devonian and 389 feet high on the Silurian with The Texas Company's T. P. Land Trust-Fraser 1-B, a 9339-foot Simpson failure a mile southwest of the field. The latter was abandoned due to low structural position after time out to renew the short-term lease.

Stanolind Oil & Gas Company's Williamson 1, 5/8-mile northwest of the North Goldsmith field, recovered 900 feet of gas-cut mud during a 5-minute drill-stem test at 8909-78 feet in Silurian, topped at 8555 feet. A retest will be made before deepening. Favorable showings were passed up in the Devonian, topped at 8045 feet.

Cities Service Oil Company's Parker-Wentz 1, 3/4 mile southwest of the Herper field, logged the Permian-detrital contact at 8315 feet and dry Pennsylvanian at 8485 feet, while it was drilling lime and shale at 8735 feet. No deep tests have been made in the area.

Texas' Connell 29, C NE NW PSL 9, Block B-16, 1½ miles west of the Penwell field and first Ordovician test for the area, cemented 5½-inch pipe on bottom at 9675 feet in Ellenburger, topped at 9525 feet after testing sulphur water below 9599 feet. Nominal oil showing in Upper Ellenburger, Devonian and the Holt will be given decisive production tests through perforations.

Andrews County: Mid-Continent Petroleum Corporation's University 3-11, south offset to its Fullerton-Devonian field discovery, flowed 16 barrels of oil hourly natural for 33 hours through 2-inch, then responded to treatment with 500 gallons of mud acid with a flow of 81 barrels of 40.1-gravity oil, gas-oil ratio 314/1, per hour via 3/4-inch choke on 3-hour test. Production is from perforations at 10,580-630 feet in Ellenburger, topped at 10,596 feet, or 782 feet low to the recent Ellenburger discovery near the apex of the Fullerton structure, 4¾ miles north by west.

Magnolia Petroleum Company's Martin 2, 2 miles southwest of its 10,118-foot failure, entered the Devonian at 9245 feet, being 60 feet high to the earlier test on the 1280-acre lease, and was drilling lime and shert at 9315 feet.

Shell Oil Company's Nelson 1, 1¼ miles east by north of a 10,929-foot failure on the west side of the county and structurally higher, entered the Wichita-Albany at 7008 feet and was drilling dry lime at 7095 feet.

Crockett County: W. A. Moncrief-Hyde and Showers' Shannon 1, ½ mile north of Ellenburger production in the Todd area, was abandoned at 6507 feet in Ellenburger, topped at 6305 feet, or 312 feet low to the nearest producer from this zone. The group paid $80,000 cash and agreed to pay $1 million out of oil for their 80-acre drilling site.

Ben Banner et al's Shannon 1, Richard Pillow Survey 1 and 5 miles northeast of the Noelke field, developed a flow of 3 million cubic feet of gas from the Soma (Yates) sand at 1627-31 feet, with elevation of 2580 feet. Drilling was halted at 1668 feet to set pipe. This wildcat is contracted to explore the Clear Fork to 2900 feet.

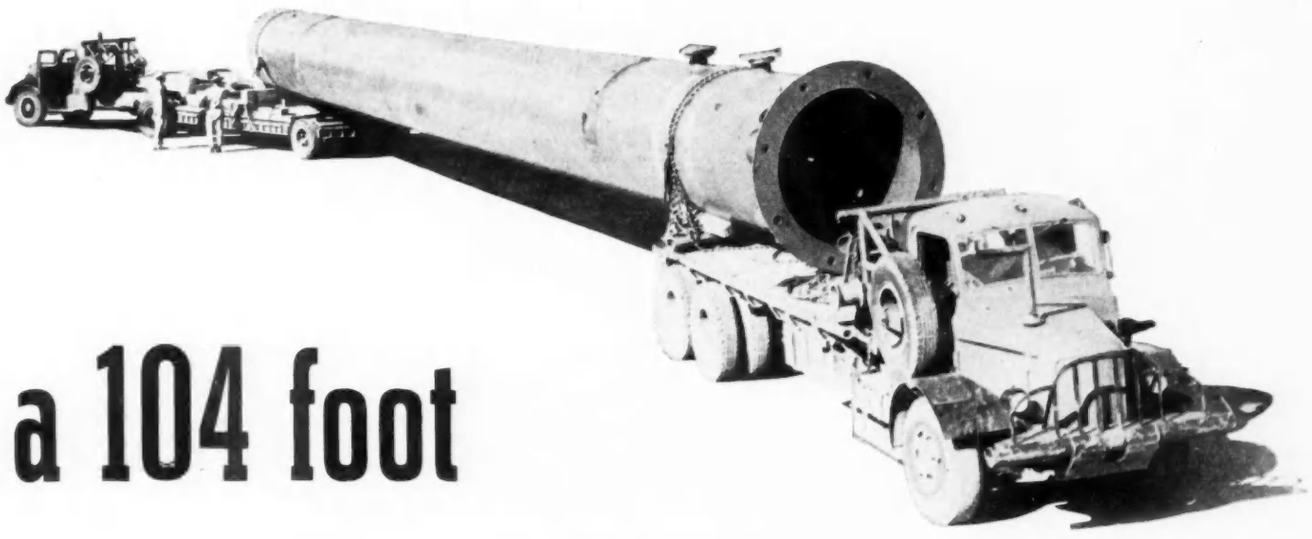
Lamb County: Humble Oil & Refining Company's Arnold 1, a mile west of the Anton 4-well pool, was abandoned in Clear Fork at 6022 feet, although it showed promise of a commercial pumper before entering water at 5928 feet with elevation of 3441 feet.

Dawson County: Seaboard Oil Company's Lee 1, C NE NE T&P Ry. 47, Block 34, T-5-N, showed a small amount of free oil on swabbing test at 3737-75 feet in San Andres, topped at 3500 feet with elevation of 2905 feet. Additional pay was encountered in deepening of 3795 feet, and 3000-gallon acid treatment resulted in recovery of 49 barrels of fluid, averaging 90 percent oil and 10 percent water, on 11-hour swabbing test.

Crane County: Humble's Cowden 1, C NE SE sec 35, Block X, 1½ miles northwest of the Crane-Cowden pool and a failure in Ellenburger at 7710-9460 feet, tested a small volume of oil and acid water after using 2000 gallons of acid through perforations at 6200-50 feet in Devonian, topped at 6085 feet. This wildcat is due to make a commercial producer when perforated higher in the Devonian. The company's Cowden 1-B, an Ellenburger project and 3 miles north by east, was fishing at 3791 feet.

Humble's Tucker 1, H&TC Ry. 22, Block 1, 1½ miles north by west of the McKee pool, the same distance north by east of the Abell field, and an equal distance south by east of a Waddell sand pumper, is rated at 6½ million cubic feet of gas daily through 24/64-inch choke from Simpson perforations at 5700-20 feet. This semi-wildcat tested

How would you move a 104 foot Steel Tower?



Brother, it was *some* package. Long as a couple of freight cars. Weighed 146,400 pounds. And wanted in a hurry *six miles away,* for La Gloria Company's new gasoline plant at Falfurrias, Texas.

W. S. ("Pop") King, hauling contractor of Corpus Christi, handled the job with two Mack trucks and a lowboy trailer. He sat the front end of the tower on a trailer hitched to a Mack, the rear end on another Mack going in reverse. And the mammoth delivery job ran off as smooth as silk.

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Henry Lemons
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water in Ellenburger at 6040-344 feet. Standard Oil Company of Texas' Tucker 1, north offset to the Waddell sand discovery, tested 10 to 12 million cubic feet of gas daily from Simpson at 5762-72 feet, and was fishing at 6028 feet. Magnolia's Flood-State 2, offset to the discovery, missed the Simpson gas and was drilling dry conglomerate at 5877 feet.

☆ North Texas

Young County Confirmation Well Makes Prolific Flow

Confirmation well for Young County deep area makes prolific flow, while second failure indicated; prospective Bend discovery in Montague County finds Ellenburger barren.

Young County: L. T. Burns et al's Kunkel 1-A, south offset to the Crain pool's Mississippian discovery, and twin location to a junked producer, flowed 140 barrels of oil per hour on preliminary test of lime at 4887-98 feet. The Mississippian was entered at 4887 feet or 46 feet high to the discovery. Rig has been skidded to drill Bishop 1, east offset to the discovery.

Wichita Production Company's Wilson 1-A, southeast offset to the discovery, entered the Mississippian at 4912 feet, or 10 feet low, and failed to respond to acid treatment of section at 4912-25 feet. Short liner will be set to make further tests with acid. R. N. Lipscomb's Herring 1 previously defined the area 3 locations south, having correlated 28 feet low, and will attempt to complete in the Bend.

Montague County: Continental Oil Company's Jarrell 1, Sec. 3433, TE&L Co. survey and 2⅜ miles southwest of the McNutt pool, only Viola lime area in the state, was due to set pipe after drilling to 7007 feet in dry Ellenburger topped at 6690 feet, or 334 feet high to the McNutt pool discovery. Test will be made of saturation in Bend, topped at 5705 feet.

Montague County entered the new year with 9 active wildcats with 2 likely to produce after being plugged back. This enlarged program resulted from the opening of the Belcherville field and north extensions given the Hildreth and Stoneburg fields.

Clay County: Continental Oil Company's Heard 1-C, 3 miles southeast of the Joy multi-pay field, recorded a potential of 1170 barrels of 41-gravity oil, with gas-oil ratio 650/1, through ½-inch choke from Ellenburger open hole at 6468-93 feet. This wildcat passed up indicated flowing production at 5740-81 feet in Bend, topped at 5735 feet, or 91 feet high to a 6455-foot Mississippian failure 1 mile southeast.

Cooke County: Seitz-Comegys & Seitz, Inc.'s Mooney-Magnolia 1, ¾ mile south of a 3900-foot Strawn sand pool recently opened by James L. Anderson on the west side of the Wilson 2300-foot field, was abandoned at 4200 feet in Ellenburger, topped at 4164 feet.

Standard Oil Company of Texas' Beasley 2, Ellenburger project for the Sivells Bend field, was drilling shale at 7705 feet, having tested dry at 7436-44 feet in the deepest of the field's 4 pays. Seven rigs are active in this area, and ample acreage has been proved to assure a heavy volume of completions in 1946.

Wilbarger County: Amerada Petroleum Corporation's Judd 1, 3¼ miles east by north of the Fargo field, entered dry conglomerate at 5090 feet, and was drilling shaley-lime at 5185 feet.

Roundtable Discussions on Secondary Recovery Planned

In order to discuss mutual problems affecting secondary recovery operations in Northeastern Oklahoma and Eastern Kansas, Marion Stekoll, independent operator of Independence, Kans., is inviting producers and engineers to meet for informal roundtable discussions once a month.

The first meeting is scheduled for Thursday, January 24, at the Tioga Hotel, Chanute, Kans., and the subject will be "Bypassing, Channeling and Breakthroughs in Water Flood Operations."

California Lands Offered

The California State Lands Commission is receiving bids from oil companies to explore for oil and gas on state-owned tidelands. The acreage offered is: 764 acres at Summerland, 1505 acres at Carpenteria, 1427 acres in parcel A, and 1254 acres in parcel B at Capitan; 1920 acres extending westerly from the Naples townsite at Elwood and 636 acres in parcel A and 635 acres in parcel B at the Santa Barbara Mesa. Bids will be opened about February 15.

☆ East Texas

Chapel Hill Field Deep Gas Test Plugged Back to Pettit

Chapel Hill field deep gas prospect plugged back to Pettit; Paluxy strike at Mount Sylvan idle for title work; substantial volume of deep wildcats nearing decisive levels.

Smith County: Sinclair Prairie Oil Company's Shofner 1, Chapel Hill field, is attempting to complete in the regular Pettit pay with 8-inch pipe at 8083 feet after developing junked hole while making 2 million cubic feet of gas from the marine phase of the Cotton Valley at 13,577 feet. A completion at the latter depth would have established a new producing depth record for the state.

Humble Oil & Refining Company's Pool 1, indicated oil discovery for the Mount Sylvan area, was idle at 7535 feet in Basal Paluxy to complete title work on its extensive lease block. This wildcat showed for a commercial producer from Paluxy topped at 7190 feet early in December, then deepened to water at 7428 feet. The effective pay section has been estimated at 45 to 55 feet. Cash bonuses paid for leases and royalties the past month have been out of proportion to the production outlook for the area.

Houston County: H. L. Hunt's Houston County Timber Company-Magnolia 1, 2 miles north of Hennard, was drilling in Georgetown lime at 7915 feet to explore the Edwards on the strength of a new gas-distillate strike from the latter horizon in Trinity County. The Woodbine was entered at 7096 feet with elevation of 3338 feet but carried water. Fred M. Manning's Houston County Timber Company 1, on a Magnolia farmout, was drilling shale at 5450 feet on a 7500-foot Woodbine contract. However, the latter may be carried to the Edwards.

Anderson County: Humble's Todd 1, Travis Peak test for the nearly depleted Boggy Creek field, was coring anhydrite and shale at 9985 feet, having entered the Massive Anhydrite near the 9125-foot level. The company's Freeman 1, Brushy Creek prospect, was drilling shaley-lime at 7270 feet.

Hopkins County: Delta Drilling Company's Livingston 1, prospective gas-distillate discovery in the 8000-foot Gloyd, was drilling sandy-shale at 8615 feet.

Wood County: Magnolia's McCreight 1, Lot 7E, Esparza survey and 3½ miles northwest of the Quitman field, was drilling shaley-lime at 8215 feet, having failed to develop any shows to this level.

Henry W. Hewetson Is Named Imperial Oil Limited Chief

Imperial Oil Limited, Toronto, announces that Henry H. Hewetson has been elected to succeed the late R. V. LeSueur as president, and Frank W. Pierce has been chosen chairman of the board.

Hewetson has been in the oil business since 1919, when he was demobilized from the Royal Air Force and became a member of a student training course with Imperial Oil. In 1940 he became a vice president and director of the company.

Pierce has had a long career in industrial relations, having set up a department for Goodyear Tire and Rubber Company soon after his graduation from Cornell University in 1916. He left Goodyear in 1924 to assume full direction of industrial relations for Standard Oil Company (New Jersey). He was elected a director of Imperial Oil in 1944.

Other changes in executive personnel include: Election of John Rigsby White to vice president. He was formerly a director. A. E. Halverson, who has been a director for 11 years, has taken over new duties as contact director for several head office departments involving the company's corporate affairs. Frank G. Hall, who joined Imperial as an office boy, has been elected a director of the company. He is also general sales manager.

Clarence A. Eames, vice president in charge of transportation, has resigned. He had been associated with the company since 1921.

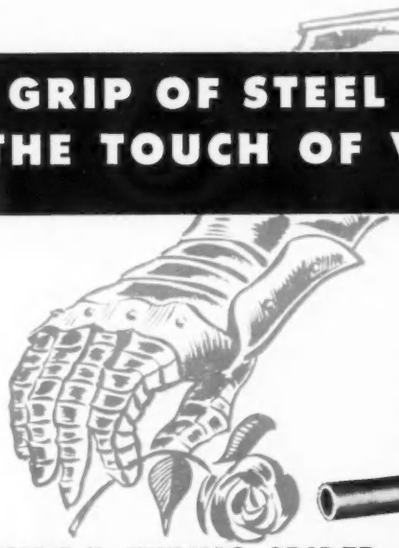
☆ East Texas Border

Magnolia Opening New Oil Field in Marion County

Magnolia opening new Marion County oil field; wildcat tests active in Harrison and Shelby counties.

Marion County: Magnolia Petroleum Company's S. L. Orr 1, R. B. Fowler survey, prospective wildcat discovery 3½ miles southwest of the Avinger townsite, is drilling below 7600 feet after

GRIP OF STEEL WITH THE TOUCH OF VELVET



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When running or pulling long strings of tubing, the wellman will appreciate the self-equalizing slips of the Guiberson Type B Tubing Spider. Gripping with jaws of steel with large slip area and full contact around the tubing, these slips assure a positive grip without distortion of the tubing or damage to its surface. The spider is designed and tested for loads up to 65 tons (20,000 feet of 2½" upset tubing).

Because of its exceptionally light weight, one man can handle the Type B Spider. Complete slip assembly weighs approximately 33 pounds; bowl assembly, 96 pounds. High quality steels throughout assure long life in the toughest service. Slips are machined and heat-treated to a surface hardness of 57 Rockwell "C". Recess in top flange of the bowl keeps the slip assembly upright and out of the way when pulling or running tubing. Squared edges of bottom flange will fit a rotary table. Two slots in the bottom flange permit bolting to well head. Gate lifts out easily when placing around tubing.

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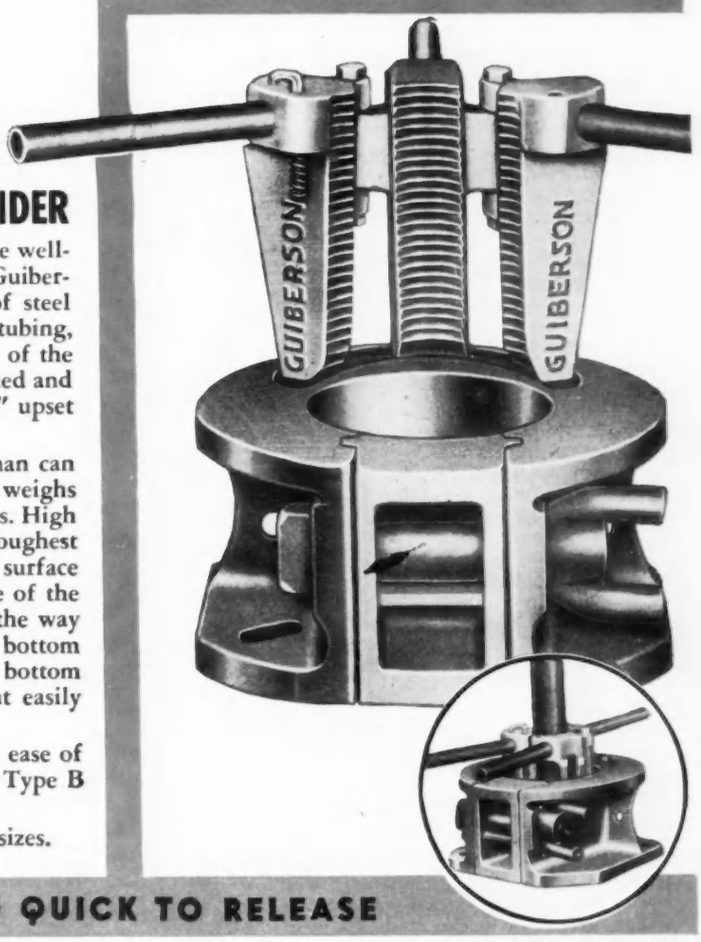
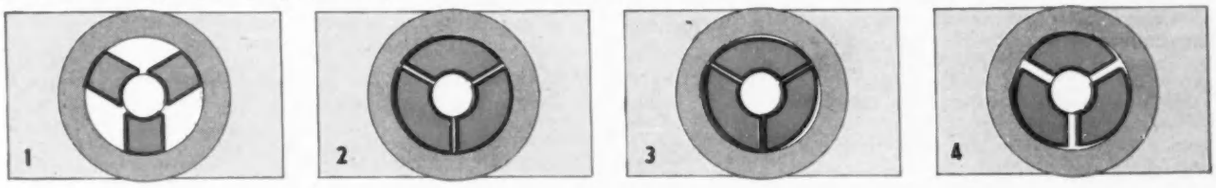


GUIBERSON SLIPS EASY AND QUICK TO RELEASE

Unique design of Type "B" Tubing Spider slips assures a true fit in the bowl regardless of their vertical position and precludes sticking.



(1) The narrow back of Guiberson's Type B slip achieves a better load distribution, together with considerable range of setting levels within the bowl, assuring instant release when tubing is lifted. Wear is nominal and sticking is eliminated.

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recovering 1600 feet of water cushion and about 1000 feet of 39.4-gravity oil with no indication of salt water on a drill-stem test using ½-inch bottom choke and ¼-inch top choke. Previously, a core at 7573-86 recovered 13 feet of oil sand.

Harrison County: Placid Oil Company's Mattie Lee Knox et al 1, Benjamin Parker survey, wildcat 3 miles southwest of Harleton, is drilling below 7950 feet in sandy shale.

Shelby County: Hiawatha Oil Company's Pickering Lumber Company 1, W. J. Brittian survey, is drilling below 5420 feet in hard sand.

☆ South Central Texas

Humble Continues Tests in Atascosa County Gas Strike

Humble continues to test Atascosa County wildcat gas discovery; 2 wildcat tests active in Lee County.

Atascosa County: Humble Oil & Refining Company is still testing Henry Schorsch 1, gas discovery well about ¾ mile southwest of Jourdanton. Operator set 5½-inch casing on bottom at 7405 feet and perforated at 7263-95 feet for completion. The well is reported to have gauged 5½ million cubic feet of gas daily open with tubing pressure 2500 pounds on a ⅛-inch choke.

Lee County: Seaboard Oil Company of Delaware's Paul Hancock 1, wildcat 8 miles north of Paige, is drilling below 9275 feet in sandy shale.

Humble's George Vick et al 1, wildcat in the Tanglewood area, is below 6345 feet in hard lime.

Oklahoma Allowable Fixed; West Edmond Plan Approved

Daily oil production for Oklahoma during January was fixed by the Oklahoma Corporation Commission at 390,000 barrels, of which 192,775 barrels will be from allocated pools and 197,225 barrels from unallocated areas.

The commission approved a plan to maintain production from nearly 700 wells in the West Edmond pool at 80,000 barrels per day, the wells to yield an average of 131 barrels daily due to the establishment of a new gas/oil ratio of 3364 feet of gas per barrel of oil.

The commission ordered the Jones Northeast pool of Oklahoma County removed from the list of allocated pools, and the Lone Grove Southwest in Carter County with 46 producers was granted a per well allowable of 75 barrels or 3450 barrels a day.

Controllers Elect

The Controllers Institute of America, New York, announces election of four new members from the petroleum industry, including Russell G. Bannister, assistant treasurer of the Petrol Corporation, Philadelphia; Donald R. Boggs, chief accountant of the Standard Oil Company of Texas, and Hubert L. Smith, vice president, secretary, and treasurer of that company; and Willis B. Oram, secretary and controller of the Darling Valve & Manufacturing Company, Williamsport, Pennsylvania.

☆ Southwest Texas

Duval County's Benavides Area Is Given Setback

Benavides area receives setback; Parson discovery in Starr County designated as part of Rincon field; Jim Hogg County wildcat abandoned.

Duval County: The Benavides area received a setback when Hiawatha Oil & Gas Company's George Parr 32 was abandoned at 6010 feet after picking up sand and showing salt water between 4205-4300 feet.

Henshaw Brothers' C. L. Palacios 1, Sejita area, was spudding on a 5900-foot contract.

Starr County: The Harrus Syndicate has made 2 locations on the Parsons side of the Rincon field. They are the M. M. Garcia 4 and 5 with both tests having contract depths of 3600 feet.

The Harrus Syndicate's M. M. Garcia 1 originally was declared the discovery well of the Parson field by the South Texas Geological Society. The Texas Railroad Commission and the operator subsequently requested that this well and area be designated as a part of the Rincon pool.

Jim Hogg County: Miller Brothers & Bowling's J. M. Tygart et al 1, wildcat 15 miles south of Hebbronville, has been abandoned at 4515 feet.

Lloyd Corporation President Heads Western Association

Ralph B. Lloyd, president of Lloyd Corporation, was reelected president of the Western Oil and Gas Association for his fifth consecutive term. Also elected as vice presidents were William Reinhardt, vice president, Union Pacific Railroad Company; and H. D. Collier, chairman of the board, Standard Oil Company of California.

☆ Lower Texas Coast

Willacy County Willamar Field Has New Shallow Pay

Shallow sand opened in Willamar field; Coquat testing Kittie West field well; 2 wildcat tests spudding in Nueces County.

Willacy County: Pan American Production Company has made dual sand completion on G. C. Kent 3, Willamar field, in which it opened a new shallow sand at 5286 feet. Perforated at 5286-88 feet, the well flowed 79 barrels of 35-gravity oil daily through a ⅛-inch choke with tubing pressure 100 pounds and gas-oil ratio 1910/1. Perforated in the regular sand at 7900-65 feet, the well gauged 80 barrels of 31-gravity oil daily through a 10/64-inch choke with tubing pressure 1050 pounds.

Live Oak County: Henderson Coquat's Kittie West Schreiner 1, D. R. Fant survey, Kittie West area, 6 miles southwest of Three Rivers, is conducting tests after setting casing at 6840 feet with total depth 7560 feet. The first test at 6700 feet showed gas and condensate. Continental Oil Company's Kittie West Schreiner 1 was completed in March, 1945, at 6705-11 feet to open the field.

Nueces County: Standard Oil Company of Ohio's Mrs. Lucy Frances Cooke 1, wildcat in the E. R. Oliver survey, 2 miles west of London, was spudding on an 8700-foot contract.

Santa Clara Oil Company & Maguire Industries, Inc.'s Nina G. Stewart 1, wildcat 3 miles west of Calallen, was spudding on an 8000-foot contract.

Karnes County: Two new completions have been made in the Falls City field by Southern Minerals Corporation. The company's Martinez Mercantile 4 flowed 156 barrels of 48.7-gravity oil daily through a ⅛-inch choke from perforations at 4677-81 feet. The J. Olinick 2 gauged 124 barrels of 48.6-gravity oil daily through a ⅛-inch choke from perforations at 4664-49 feet.

☆ Upper Texas Coast

Edwards Lime Production Opened in Trinity County

Edwards lime production opened in Trinity County; Madison County well to drill deeper; well completed in Willis area; activity boosted at Fannett.

Trinity County: Probably the most important development from a geological standpoint in recent Upper Texas Coast oil history is the completion of Magnolia Petroleum Company and Continental Oil Company's Bolton 2, Henry Bond league, 3 miles east of Glendale, in the Edwards lime. Perforated opposite this formation at 10,500-520 feet with 90 shots, the well flowed at the rate of 5½ million cubic feet of gas daily with a distillate flow of 5 barrels an hour through ¼-inch choke. Operators set packer and retested and the well now is flowing into tanks with no official gauge announced. The Bolton 2 was drilled to 12,505 feet in the Upper Glen Rose and plugged back to 10,590 feet for completion. This well is considered the first Edwards lime strike east of the Balcones fault (Luling district).

Montgomery County: The Moran Corporation's R. G. McIntyre Estate 1, Joseph Lindley survey, Willis area, is reported flowing gas and 50-gravity condensate through a ⅛-inch choke from perforations at 3803-23 feet. The flow is estimated at 5 barrels of condensate and 1 million cubic feet of gas daily. Gas-oil ratio was 100,000/1.

Madison County: West Production Company and Noranda Oil Company's Boring 1, wildcat in the Madisonville area, has landed protection string around 9500 feet and will drill deeper. This well was reported a failure in the Woodbine topped at 8440 feet and now probably will be carried deeper to test possible production in lime formation similar to that found in Magnolia & Continental's Trinity County strike.

Jefferson County: The Fannett area continues to receive an extensive development program. Glenn H. McCarthy has spotted George Gill Estate 1, wildcat on a 320-acre tract in T&NO survey, Sec. 141. This location is 5000 feet due south of the operator's recently abandoned Hieman 1.

In the southeast sector of the Fannett field, Gulf Oil Corporation's Leo Craigen

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5-A has been completed for 291 barrels of 37.4-gravity oil daily through a 10/64-inch choke from perforations at 7138-46 feet.

McCarthy's Frank Burrell 2, same area, was finaled for 213 barrels of 35.3-gravity oil daily through a 5/32-inch choke from perforations at 7567-72 feet.

Chambers County: McCarthy's Jobes Investment Company 1, outpost in the North Stowell field, has been completed for 192 barrels of 39.2-gravity oil daily through a 5/32-inch choke from 8728-30 feet.

J. Newton Rayzor's S. R. Williams 1, west of Cedar Bayou production, has been abandoned at 7503 feet.

Colorado County: The Superior Oil Company has located Mrs. Myra S. Pryer 2-A in the BBB&C survey as a southwest outpost in the Altair field.

Spacing Rules Asked

The Atlantic Refining Company has petitioned the Oklahoma Corporation Commission to establish well spacing and drilling units in the new Southwest Hunter oil pool of Garfield County which was opened by Atlantic's Schmidt 1, SE SE SW 25-24n-5w, a Wilcox sand producer. The company owns a block of approximately 5000 acres around the discovery well and seeks to have the field developed on the basis of one well per 40 acres. This spacing, company officials declare, will be adequate to economically drain and produce the common source of supply where it will cost approximately $85,000 to drill and equip each well. The discovery well was completed for approximately 250 barrels of oil daily between 6141-48 feet.

☆ South Louisiana

New Pay Tapped by Humble Project in Iberia Parish

Humble opens new field in Iberia Parish; Napoleonville activity boosted; Barnsdall finals West Tepetate field producer.

Iberia Parish: Humble Oil & Refining Company has made final completion at Mayo Romero 1 to open a new producing area near Iberia. The well, in 2-12s-7e, was drilled to 11,330 feet with 7-inch casing set at 11,327 feet. Operator perforated pipe with 47 shots at 11,010-015 feet and on a 24-hour gauge flowed 1,070,000 cubic feet of gas with 14 barrels of 51.2-gravity condensate through a 9/64-inch choke. The gas-condensate ratio was 75,400/1 with tubing pressure 3700 pounds. The discovery well will furnish fuel for the drilling of Humble's Romero 2.

Assumption Parish: Activity in the Napoleonville field continues to be boosted by new locations. Falcon Seaboard Drilling Company recently completed Ed Hebert 1 as an excellent producer in the 6800-foot sand and has located Ed Hebert 2 in 40-12s-13e.

Shell Oil Company has located W. F. Winham 1-B in 33-12s-13e.

Jefferson Davis Parish: Barnsdall Oil Company's James Fuselier 9, West Tepetate field, has been completed for 260 barrels of 36.5-gravity oil daily through an 11/64-inch choke from perforations at 8502-11 feet. Tubing pressure was 950 pounds and casing pressure 1450 pounds.

Gulf Refining Company has located Calcasieu National Bank et al 1-F as a 13,000-foot Frio sand test in the Hayes area. It is in 17-11s-5w.

St. Martin Parish: Stanolind Oil & Gas Company has located St. Martin Land Company 2 as a new test in the Section 28 Dome area.

In the St. Martinville field, Continental Oil Company completed A. L. Durand et al 3, in 79-10s-6e, as a gas and condensate producer through perforations at 10,095-105 feet. The well gauged 20 barrels of 48-gravity condensate daily through a 12/64-inch choke.

St. Charles Parish: Humble's Sarpy Brothers 7, Good Hope field, has been completed for 423 barrels of oil daily through a 3/16-inch choke from perforations at 7800-20 feet. Gas-oil ratio was 542/1.

☆ North Louisiana

Natchitoches Parish Has Woodbine Sand Discovery

Halbouty opens Natchitoches Parish field; Caddo Parish wildcat near contract depth; final gauge made on Franklin Parish discovery well.

Natchitoches Parish: M. T. Halbouty has completed C. L. Detro 1, Ashland area, 1-13n-8w, in the Woodbine sand at 3285-96 feet to open a new field. The well is credited with flowing 120 barrels of 28-gravity oil daily through a 9/64-inch choke. Casing was cemented on bottom at 3301 feet. Geological markers released by Halbouty were Midway 620 feet, Arkadelphia 1410, Nacatoch sand 1500, Saratoga 1660, Annona 1930, Buckrange 2205, Tokio 2380, Austin chalk 2955, base chalk 3090, Eagleford sand 3145, and Woodbine 3285.

Magnolia Petroleum Company's Union Saw Mill 1, wildcat in 7-6n-6w, is drilling below 5040 feet in sand and shale. It is projected to 9500 feet.

Caddo Parish: Union Producing Company's Noel Estate 1-A, wildcat in the Longwood area, is drilling near contract depth of 8500 feet after recovering salt water in the Cotton Valley at 8315-19 feet.

DeSoto Parish: Spartan Drilling Company's B. F. Thigpen 1, wildcat in the old Bull Bayou area, is drilling below 9200 feet in sandy shale after an electric log indicated the top of the Cotton Valley at 8617 feet.

Franklin Parish: Final gauge has been taken on Atlas Oil & Refining Company and C. W. Sharp's J. H. Baker 2, which has opened the Lamar field. The well flowed 145.8 barrels of 43.6-gravity oil daily through a 3/16-inch choke from sand in the Tuscaloosa section at 4874-79 feet. Total depth was 4940 feet with 5½-inch casing set on bottom. Operators are still testing Baker 1, east offset to the discovery.

Gus K. Primos and C. W. Sharp are still erecting separator and storage tanks for Butler 1, prospective discovery in 20-16n-8e, about 3 miles south of the Big Creek field. The well is shut in with hole full of oil after perforating with 90 shots at 3525-40 feet opposite Paluxy sand.

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☆ Mississippi

Adams County Prospect May Be Massive Sand Discovery

New discovery in prospect for Adams County; Greene County prospect resumes tests of Eutaw; successful completion noted for Madison County field.

Adams County: Roeser & Pendleton-Sohio Petroleum Company's Baker-Maier 1, NWc 34-6n-2w, a few miles from Natchez, appears to be a certain commercial producer with the discovery of 25 feet of saturation in the Massive sand zone at approximately 10,520 feet. Five and one half-inch casing has been set to 10,635 feet and preparations made for a production test. Several weeks ago good oil shows had been encountered in the Wilcox section at 4630-46 feet and they also will be developed to determine commercial possibilities. The Baker-Maier is the third prospect to be drilled in this block. The others were abandoned as dusters. If the well is successfully completed it will mean 3 producing fields for the county.

Phillips Petroleum Company's Davey 1, 46-8n-2w, Massive sand prospect, is making core tests in the 10,000-foot zone. No shows have been indicated. In the Cranfield field The California Company's Vernon Johnson 1, 27-7n-1w, is drilling below 9947 feet with no shows. California's Ella G. Lees 12, 45-7n-1w, is preparing to test the 6000-foot zone of the Wilcox horizon after running electric log and setting 7-inch casing at 5823 feet.

Greene County: Humble Oil & Refining Company's Oscar E. Waer 1, NEc SE 33-5n-8w, which has plugged back to 6941 feet to test oil shows previously encountered in the Eutaw section, recovered oil-cut mud and salt water on the initial drill-stem trial from perforations at 6836-42 feet.

Madison County: L. Jones & Associates' J. R. Anderson 1, NE SE 2-8n-1w, Flora field, has been successfully completed for the first new producer to be brought in here in some time. The well was swabbed in and on initial production test pumped 160 barrels of 26-gravity oil with 10 percent salt water per day. Production is from the Gas Rock zone below 4335 feet.

Jeff Davis County: Humble's Denkmann Lumber Company B-1, C SE SE 27-9n-19w, Gwinville field, on initial production test flowed 68 barrels of 41-gravity oil per day through 5/64-inch tubing choke. Tubing pressure was 1500 pounds.

Jasper County: Lyons & Prentiss' Culpepper Unit 1, NEc NW SE 13-1n-12e, East Heidelberg field, has been completed with an initial production of 120 barrels of oil per day. Two sections of the Eutaw were perforated between 5009-5038 feet to establish production. K. D. Owen and D. C. Bintliff, new operators in the area, have reached productive levels of the Eutaw at 5067 feet and are running tubing. No shows have been announced. Tide Water Associated Oil Company-Gulf Refining Company's Simmons-Morrison Unit 1, NEc NW SW 30-1n-13e, East Heidelberg, was waiting on pump after developing commercial potentials. In a drill-stem test at 4872-89 and 4937-54 feet, 2440 feet of oil and 360 feet of mud were recovered.

Lincoln County: Roeser & Pendleton's Nora Smith 1, NW SE 8-7n-7e, Brookhaven field, was setting casing to test after coring shows of oil from the lower Tuscaloosa below 10,300 feet.

Lamar County: Gulf's W. E. Davis 2, NWc 7-1n-16w, Baxterville field, has been shut in after it started flowing oil from perforations at 8700-20 feet opposite the Massive sand zone. Gravity was 18.1 and tubing pressure 700 pounds. Humble's Lamar County Board of Supervisors 1, NE NE 16-1n-16w, Baxterville, was preparing to swab after the well failed to flow from perforations at 7750-55 feet. Fair shows of gas had previously been indicated in this zone. A drill-stem test at 8880-90 feet in the Massive sand had also recovered oil-cut mud and mud cut with gas in a 34-minute test.

Clarke County: H. L. Hunt's Long Bell Petroleum Company 2, SWc 29-1n-18e, Langsdale field, has been successfully completed and pumped at the rate of 95 barrels a day on initial production test. Four sections of the Eutaw were perforated between 3664-3756 feet and production established. Gravity of the oil was 19.

Alabama

C. V. Carey & Nu-Enamel Corporation's A. W. Hill 1, wildcat in NWc 27-9n-1e, Clarke County, wildcat, is preparing to resume drilling below 625 feet after setting casing to 547 feet.

Walker County: Glen D. Rose Oil & Gas Company's First National Bank of Birmingham 2, NW SE 30-12s-7w, is waiting on cement after reaching 1637 feet.

Mobile County: Danciger Oil & Refining Company's William R. Giesler 1, NE SW 8-4s-2w, has been abandoned as a duster at 8530 feet. No shows were encountered.

Florida

Monroe County: O. D. Robinson's State Well 1, wildcat in NEc NW 29-59s-40e, Monroe County, is drilling below 7765 feet in the lower Cretaceous after circulation was restored. No shows have been reported. Gulf Refining Company's State 1, SWc 2-67s-29e, wildcat, is drilling below 3000 feet after running electric log. The well is being extensively cored but no shows have been noted.

Highlands County: Humble Oil & Refining Company's G. C. Carlton Estate 1, C SW NE 34-38s-29e, deep test, is drilling below 12,837 feet after running electric log. No shows have been noted.

Lafayette County: Sun Oil Company's Crapps 1, SW NE 25-6s-12e, wildcat, is drilling below 2600 feet in sidetrack hole after encountering trouble in original effort.

Bay County: The Pure Oil Company's International Paper Company 4, SWc 8-3s-12w, wildcat, is drilling below 3672 feet with no shows.

Georgia

Kerlyn Oil Company's Cecil Pate 1, Land Lot 144-Land Dist. 13, Crisp County, has been spudded and is drilling below 192 feet.

Montgomery County: James E. Weatherford's H. Wilkes 1, about ½ miles west of Higgston, is rigging up.

☆ California

Tests of Los Angeles County Prospects Are Disappointing

Production tests of Los Angeles County wildcats are disappointing; General Petroleum again makes production tests in Buena Park deep-test, recovering oil and fresh water with slight showings of gas; Cymric producing well begins to show large water cut; 3 wells completed in Rio Vista gas field.

Los Angeles County: In the Bandini area Richfield Oil Corporation is coring below 9150 feet in U.P. Unit 1, 9-2s-12w, after a test of the interval 8786-8820 feet recovered gassy mud and salt water, with only a trace of oil. The company's Simons 1, Sect. 15, is coring below 7450 feet in shale and gray sand. C.C.M.O.'s Bandini 1, Sect. 21, is coring below 7910 feet without showings.

In the Long Beach field Shell is swabbing its deep test, Alamitos 48-A, the recovery being mud with a trace of oil. Fluid level is 4600 feet, total depth 14,950 feet.

Standard Oil Company of California's deep test of the Leffingwell area, Lewis Community 1, 11-3-11, has been plugged to 10,124 feet and is testing 4 holes shot at 9848 feet. Standard will deepen Wilshire Annex Oil Company's Community 1 in 14-3-11, originally drilled to 9034 feet and abandoned in the summer of 1941. Standard has renamed the well Behnke Community 1.

Orange County: General Petroleum Corporation is again testing its Buena Park wildcat, Librown 1 in 21-3s-11w. Total depth is 12,600 feet with 2½-inch tubing hung at 11,850 feet. On an open hole production test swab recovered oil and fresh water, the cut being approximately 50 percent. There are slight showings of gas. Fluid level is between 2100 and 2500 feet.

Kern County: Union Oil Company's Anderson 54-26, 26-29s-21e, discovery well of the Anderson sand in the Cymric field, has been producing considerable water the last 2 weeks. Present production is 150 barrels of 31-gravity oil, 30 percent cut. Independent Exploration Company is preparing to spud Oceanic 2 in 22-29s-21e and Honolulu Oil Corporation has staked Midway-Premier 22-48 in Sect. 22. H. H. Magee's Bolton 2, also in Sect. 22, is swabbing water with a scum of oil.

In the San Emidio area, Western Gulf Oil Company, which abandoned Los Lobos 1 in 4-10n-22 at 6935 feet, is rigging up to drill San Emidio 2 in 35-11n-22w. In the same area Standard of California is preparing to spud K.C.L. 24-37 in 19-11n-22w.

Shell is drilling below 11,425 feet in its Old River wildcat, K.C.L. 45-26 in 16-31-26 after unsuccessful tests of the interval 10,569-10,605 feet.

Fresno County: The Texas Company is preparing to drill a wildcat in the Tranquility area near the northwest corner of 16-16s-15e.

In the Raisin City field Petrol Corporation has completed Jones 54-13 in 13-15s-17e, flowing 192 barrels per day of 24.5-gravity oil through a 10/64-inch choke. Petrol and Seaboard Oil Company are drilling wells in Sect. 14.

Solano County: Three gas wells were

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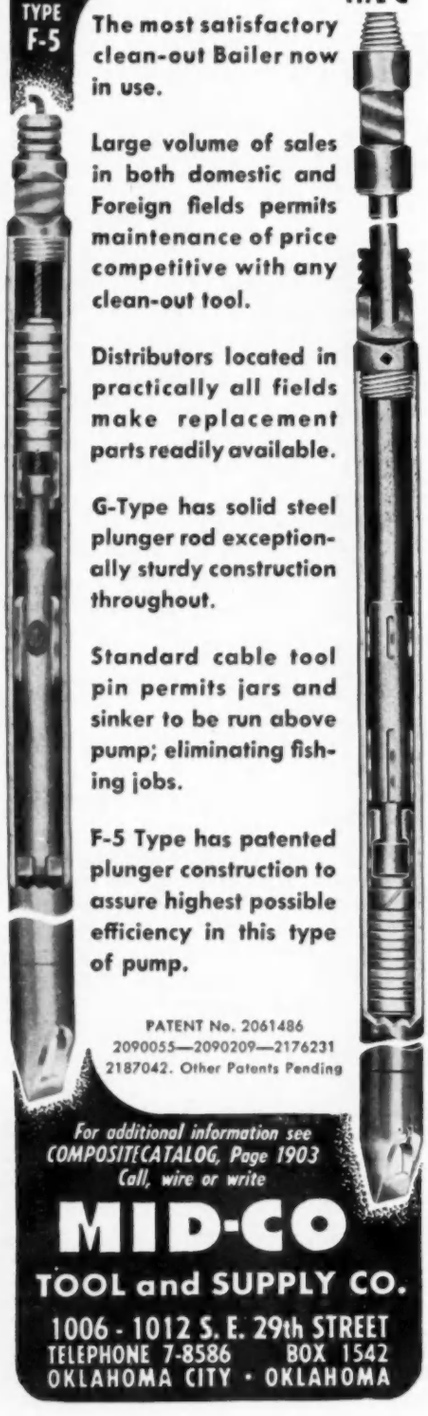

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completed in the Rio Vista gas field, an unusual number of completions for a single week. Amerada Petroleum Corporation completed Serpa 2 for 7,480,000 cubic feet through a 5/8-inch choke, total depth 5559 feet. Standard of California completed Natural Gas Corporation-Sullivan & Larsen 1 but has yet to make a flow test. Texas completed Brannon Island M-6 and shut it in without making a test.

Shell's wildcat gas test, Lambie 4 in 25-4n-1w, Kirby Hills area, has been abandoned at 4184 feet. Watery gassy mud was recovered on a test at 3004-3068 feet.

☆ Illinois Basin

Mattoon Pool, Illinois, Is Lengthened by Two Strikes

Two strikes lengthen Mattoon pool, Illinois; Richland County project to test McClosky.

Illinois

Two discoveries lengthen the north-south line of the Mattoon pool approximately 3 miles. They are Ben Nation's Donnell 1, SE SE SW 34-13n-7e, 1½ miles north of production, which has set casing to 1983 feet for a test of Rosiclare sand, which on an electric log showed 11 feet of potential pay; and Henry Grey's Dornblaser 1, NW SE SW 24-11n-7e, 1½ miles south and east of production, which has set casing at 1972 feet for a test of Rosiclare. Pay at Dornblaser 1 was reported at 1982-92 feet.

Coupled with Victor Scheef's Udell 1, C NE 15-11n-7e, Rosiclare discovery waiting to drill plug, the Mattoon pool has been given 3 discoveries in a week.

Nation is rigging tools for Elliott 1, NE NE SW 27-12n-8e, rank wildcat test, and i sdrilling below 1700 feet at Phipps 1, wildcat south of production in the pool.

George and Wrather are drilling below surface casing at Tivnen 1, wildcat northeast of production and northeast of Mattoon proper.

Shelby County: T. Blake Dirickson is rigging rotary tools for Munson 1, NW SW SW 32-12n-6e, rank wildcat in important territory, where large blocks of acreage have been secured in recent weeks.

W. Shaffer's Dappert 1, SW 2-9n-5e, southeast of small production near Stewardson, and Belden and Garman's Gerenz 1, SW NW 9-9n-5e, both wildcats, are nearing potential pay zones. A few miles north and west of the 2 wildcats, The Texas Company drilled a well several years ago and recovered shows, but no commercial production.

Perry County: Texas' Schwind 1, SW SW SW 5-4s-1w, which showed for a small producing discovery during preliminary tests, has ben abandoned as dry at 1314 feet. The Benoist sand was tested.

Washington County: W. F. Lacy's Benkensmyer 1, SW SE NE 10-1s-2w, wildcat 5 miles west of the Irvington pool, is drilling with cable tools.

Richland County: Olson Drilling Company's Cast 1, SW SE SE 31-3n-10e, is waiting to drill plug for test of McClosky lime at 3224 feet. The well is in wildcat territory ½ miles from production.

☆ Michigan

Montcalm County Outpost Has Flow from Reed City Section

Sohio, Union and Barber's Dr. Douglas 1, NW SW SE 3-12n-8w, Cato Township, Montcalm County, made 4 flows in 5 days totaling about 45 barrels of 46½-gravity crude from the "Reed City" section of the Monroe at 3545 feet. The well was killed by injecting salt water to permit reaming of hole from 3444 feet to top of pay at 3544 feet. The outpost, 3½ miles southwest of the shallow Six Lakes gas field, could prove the most important development of 1945.

Jab Oil Company's Gyger 2, SE SE NW 1-11n-7w, discovery in the Douglass pool, averaged 45 barrels a day, flowing from Dundee at 3404 feet for the third well in the pool.

Clare County: Ranch Oil Company's closely watched wildcat on Thompson 2, NW SE SE 13-18n-5w, 2½ miles south of The Pure Oil Company's discovery in the Harrison pool, logged Dundee at 4075 feet and carried 1200 feet of water at 4194 feet and was ordered abandoned.

Isabella County: Pure's Sides 1, N½ SE SW 32-16n-6w, southwest flank of the Coldwater pool, flowed 157 barrels in 4 hours for an estimated 800-barrel daily potential at 3732 feet. The well increases prospects for continued extension of the field.

☆ Rocky Mountain Area

Wyoming Deep Test Resumes Drilling as Others Suspend

Wyoming deep test resumes as deepest operation in Montana and Colorado suspend for winter; optimism prevails in Mountain states as year ends.

Wyoming

After 60 days' suspension while awaiting new equipment, the deep test at Church Buttes in Uinta County has been started up again by Mountain Fuel Supply Company. Drilling has reached 11,300 feet, and the test may go to 15,000 before reaching granite. This well soon may become the deepest in the Rocky Mountain region, as the well now holding the record at 12,784 feet is shut down for the winter. This is The Texas Company-The California Company's Unit 20 in Wilson Creek field, Rio Blanco County, Colorado.

Washakie County: Drilling probably will be resumed soon at the Parker Brothers-California Company's Nieber 1, wildcat deep test near Worland, following a $50,000 fire that destroyed the derrick and drilling equipment. The fire was caused when gas was ignited, blazing for nearly a week before a cave-in plugged the well.

Park County: Tests of rocks of Cambrian age in many parts of the Rocky Mountain area are projected following indecisive reports of green oil shows in the Cambrian immediately above the granite at Oregon Basin. The discovery well, Kirk-Pacific Western's Connaghan No. 5, is being swabbed after perforat-

ing between 6341-46 feet in the first of a series of tests. The possibility that the oil has seeped in from higher levels is being considered, but there seems to be little similarity between the green oil found in the Cambrian and the black oil at shallower levels which have produced about 30 million barrels since the field was opened in 1927.

Wyoming's black oil is coming into its own now that transportation difficulties and tariff handicaps have been surmounted and refineries using the crude have made necessary changes and modifications in their equipment and practices to use the heavy oils advantageously. A major step in this direction is the announced expansion of The Texas Company refineries at Casper, which will undergo a $6 million working over during the spring and summer.

Colorado

Drilling in Rangely field is being pushed to bring in as many wells as possible before the single pipe line outlet reaches capacity. This line, the 10-inch artery built last summer by Stanolind Oil & Gas Company for Utah Oil Refining Company, has a capacity of 20,000 barrels a day and present production is more than half way to that figure. Once the line's capacity is reached, daily proration of production is expected, hence the present scramble to bring in all possible wells.

☆ Canada

Turner Valley Crude Prices Are Increased 27 Percent

A 27 percent average increase in posted prices for Turner Valley crude went into effect January 1, resulting from decision of the Canadian Wartime Prices & Trade Board to decrease subsidies paid on shipments of American crude to the Prairie Provinces, give the oil producer benefit of the subsidy cut, and boost the price of Prairie gasoline and other "white products" 2 cents per gallon.

The price boost is 45 cents per barrel on Turner Valley crude, applying on gravities from 33 to 64 up. New prices start at $1.97 for 33-33.9 gravity, rising 2 cents for each degree rise in gravity up to oil of 64 gravity and higher, now worth $2.59 per barrel. The Turner Valley average product (43 gravity) is now worth $2.17 per barrel, compared with a price of $1.72, set in May, 1944.

On the basis of 1945 production of 7.4 million barrels, the price increase would add some $3.3 millions to annual gross revenue to producers. On a number of small wells, now operating with a very low profit margin, net returns may be boosted as much as 100 percent.

The Turner Valley price boost will presumably revise upwards the price structure on oil from other Alberta sources (some 655,000 barrels in 1945), the revision varying with the type and quality in relation to the Turner Valley product.

For more than 2 years, Turner Valley and other Alberta crude oil prices have been substantially under the competitive value with American crudes. In order to maintain price ceilings on refined products, however, W.P.T.B. has paid out millions of dollars in subsidies on American oil shipments to the Canadian prairies, rather than permit domestic crude prices to rise to competitive levels. The January 1 boost does not bring prices up to the laid-down price of American oil at prairie refineries, but the difference will continue to be met by subsidies until such time as the prairies are self sufficient or until a further rise in retail gasoline ceilings is permitted. Producers figure that the new prices are still about 30 cents per barrel under competitive level.

Imperial Oil Ltd. has taken up 2 Crown oil and gas reservations covering 105,463 acres in the Central Alberta Foothills, straddling the Brazeau-Red Deer railway line between Stolberg and Rocky Mountain House.

Shunda Oils Ltd. and Lion Oils Ltd., Alberta independents, have joined for 3 wells on the Southeastern Alberta Plains, on an 18,000 acre block between the Taber and Conrad oilfields. Initial well, Shunda-Lion 1, has been spudded in lsd 4 23-7-15w4, about 1000 feet southeast of the old Lion-Taber 1. Objective is the Ellis sand, found to be oil saturated at the old test.

Sun Oil Company has abandoned its initial well on the Minudie Anticline, near Amherst, Nova Scotia, after failing to complete difficult fishing operation with bottom 6506 feet. The heavy duty rotary has been skidded to an offset location, and a No. 2 well will be spudded in March. Nova Scotia Oil & Gas Company's well in Hants County, 40 miles north of Halifax, is now at 870 feet, with 10-inch casing at 850 feet.

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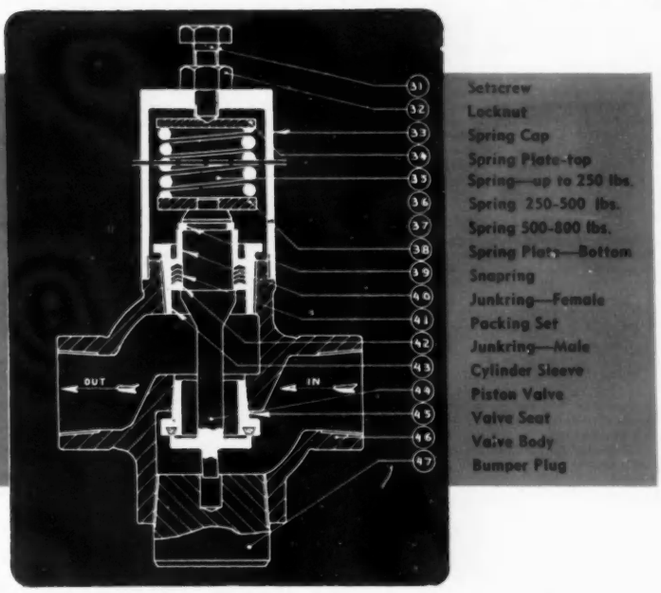


Yes, because it stands guard over the flow of your well *day and night* . . . switching on and off automatically as pressure rises and falls . . . the OMSCO Well Purger insures longer life for flowing wells.

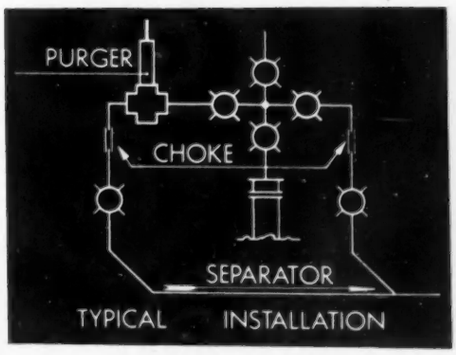
It guards the well against loading up with excessive water or oil. It protects the well from being killed.

The OMSCO Well Purger operates by tubing head pressure. It simply kicks off automatically when pressure drops to any given point. The fluid head is produced, and the Well Purger closes when tubing head pressure builds back up, restoring normal flow. It saves time . . . it keeps the well flowing longer . . . saves needless expense and possible swabbing jobs.

Now improved, the simplified design, compactness and minimum parts assure long, dependable service. Ask your supply store about the OMSCO Well Purger or write for additional facts.

WELL PURGER

OMSCO



OILFIELD MACHINE & SUPPLY CO.
Woodcrest 6-4458 P. O. Box 2172
HOUSTON, TEXAS

EXPLORATORY COMPLETIONS

ALABAMA WILDCAT

Mobile County — Failure: Danciger Oil & Refg. Co.'s William R. Giesler 1, ne sw 8-4s-2w, abnd 8530 ft.

CALIFORNIA WILDCATS

Kern County—Failures: Lamb Expl. Co. and Greathouse Oil Co.'s Johnson 1, 36-30s-22e, Etchegoin 2410 ft, abnd shale 2771 ft.

Western Gulf's Los Lobos 1, 4-10n-22w, San Emidio area, 1st Lower Miocene sd 5940 ft, abnd 6935 ft.

Miller & York's Theta 2, 12-28s-19e, Antelope area, abnd 230 ft (wrong location).

Standard of Cal.'s Cahn 58-4, 4-27s-21e, abnd 11,080 ft (will use as injection well).

Solano County—Failure: Shell's Lambie 4, 25-4n-1w, gas test, Kirby Hills area, abnd 4184 ft.

Ventura County—Failure: Shell's McBean 1, 33-3n-20w, Long Canyon area, abnd 10,549 ft.

KANSAS WILDCATS

Barton County—Failures: W. L. Hartman's Musenberg 1, sw cor 34-19s-12w, abnd 3429 ft.

W. L. Hartman's Seele 1, ne ne se 10-20-13w, Arb. 3466 ft, abnd 3483 ft.

Butler County—Failure: W. J. Talbott's Lauck 1, ne se sw 28-27s-3e, abnd 3132 ft.

Cowley County—Failure: G. M. Smith's Hillier 1, ne ne se 26-31s-7e, abnd 2850 ft.

Pratt County—Failure: Ed Swearer Bridgeport et al's Brown 1, nw nw nw 25-29s-13w, abnd 4789 ft.

COLORADO WILDCAT

Baca County—Failure: Skelly's Hankins 1, se se nw 34-33n-44w, Lansing 3501, Mississippian 5450-6052 ft, Viola absent, Simpson 6052, Arbuckle 6066, abnd 6172 ft.

MICHIGAN WILDCATS

Clare County — Failure: Ranch Oil Co.'s Thompson 2, nw se se 13-18n-5w, Dundee 4075 ft, dry, abnd 4194 ft.

Kent County — Failure: Mich. Devonian's Swainston 1, ne ne sw 3-5n-12w, abnd 1820 ft.

Mecosta County—Failure: Ashby Drlg. Co.'s Moss 1, c se 17-16n-10w, Stray 1105 ft, dry, abnd 1197 ft.

Osceola County—Failure: Ashby Drlg. Co.'s Sengelaub 1, nw se se 19-17n-10w, abnd 1450 ft.

MICHIGAN NEW PAY TEST

Osceola County—Cedar Gas Discovery: Ashby Drlg. Co.'s Boettcher 1, c nw se 28-18n-9w, Stray sd 1554 ft, 710,000 ft gas, td 1560 ft.

MISSISSIPPI WILDCAT

Smith County—Failure: Gulf's O. P. Foley 1, owdd(se nw 8-10n-13w, abnd 6332 ft.

MONTANA WILDCAT

Petroleum County—Oil Discovery: Spencer & Livingstone's O'Dea-Brindley 5 (owdd), ne ne 20-15n-30e, Mosby Dome extension Cat Creek field, td 1386 ft. Flowed 280 bopd, 52.7° gravity oil.

NEW MEXICO WILDCAT

Lea County—Junked: Southern Union Gas Co.'s English 1, c nw sw 26-18s-33e, elev 3811 ft, jkd and abnd 745 ft, skid rig 50 ft east.

OKLAHOMA WILDCATS

Creek County—Oil Discovery: Nierson Drlg. Co.'s Anthis 1, nw nw sw 27-15n-9e, pump 23 bbls, Penn 2327-49 ft, td 2660 ft.

Garfield County—Oil Discovery: Atlantic's Schmidt 1, se se sw 28-24n-5w, pump 10 bbls 41-gr oil hr Wilcox 6140-48 ft, td 6307 ft.

Garvin County—Failure: Beny Dry Goods Co.'s MacKay 1, sw sw ne 22-4n-1e, Ckbd. 3642 ft, abnd 3774 ft.

Hughes County—Failure: Leach & Warren's Brooks 1, ne ne sw 7-9n-10e, abnd 3490 ft.

Logan County—Failure: J. E. Trigg's Acton 1, nw nw se 24-19n-4w, abnd 4927 ft.

McClain County—Failure: Pure's McCruman 1, ne ne ne 33-5n-1w, abnd 6887 ft.

Okfuskee County—Failure: Manahan Oil et al's Huddleston 1, se sw ne 7-10n-11e, abnd 3096 ft.

Osage County—Oil Discovery: Norbla & Wilcox Oil's Osage 1, nw ne sw 18-26n-8e, Prue 2300-2328 ft, pump 62 bbls, td 2328 ft.

Seminole County—Failure: Pure's Hudgins 1, ne nw nw 29-9n-7e, abnd 8015 ft.

WEST TEXAS OIL FIELD EXTENSION

Upton County—McCamey Field Extension: Gulf's G. E. Farley 1, 660 ft ewl and 3300 ft nsl sec 12, blk 3½, CCSD&RGNG sur, 1 mi plus n of nw edge of McCamey field, elev 2576 ft, Yates 1575 ft, Grayburg lime 2235 ft, pumped 143 bbls 33.7-gr oil and 2 bbls water, acidized 2000 gals 2290-2358 ft.

WEST TEXAS NEW OIL PAY DISCOVERY

Pecos County—White & Baker Field Deep Oil Discovery: Helmerich & Payne, Inc.'s (Cardinal Division) White & Baker 8-C, c ne T.C. Ry. 44, blk Z, originally abnd by Humble June, 1934, at 9811 ft, elev 2715 ft, top salt 815 ft, lime 2885 ft, Pennsylvanian 6360 ft, Simpson 8012 ft, Ellenburger 9385 ft, flowed 176 bbls 37.9-gr oil, gor 210/1, natural via 11/64-in choke from Pennsylvanian perforations 7612-28 ft, td 9811 ft, pb to 8021 ft.

WEST CENTRAL TEXAS WILDCATS

Coleman County — Failure: Mohawk Drlg. Co.'s Brown 1, 330 ft snl and 1800 ft ewl of s½ lot 8, blk 108, E.T. Ry-M. E. Boggs sur, mile s by e Talpa, elev 1917 ft, abnd 3665 ft.

Runnels County—Failure: E. M. Wahlenmaier et al's Barr 1, 1983 ft nsl and 1950 ft wel of 2259-ac tract, or 1950 ft wel and 9150 ft nsl of C. Montez sur A-363, elev 1656 ft, top Strawn 3095 ft, Bend 3529 ft, Ellenburger 3705 ft, abnd 3805 ft.

Taylor County—Failure: Prince Bros. & Gehle Drlg. Co.'s Parmelly 1, 990 ft nsl and 330 ft ewl of 360-ac tract, or 5000 ft snl and 6300 ft wel of Wm. B. Hardin sur 130, elev 1846 ft, abnd 2760 ft.

NORTH TEXAS WILDCATS

Archer County—Failure: Fain & McGaha-Geo. F. Strake's O'Donohoe 2, 330 ft nsl and 990 ft ewl sec 95, ATNCL sur, abnd 3987 ft.

Clay County—Oil Discovery: Continental's S. W. Heard 1-C, 467 ft nsl and 1400 ft ewl sec 3222, TE&L Co. sur, 3 mi se Joy field, elev 1151 ft, Bend 5735 ft, Ellenburger 6463 ft, flow 1168 bbls 41-gr, gor 650/1, via ½-in, acidized 1500 gals Ellenburger 6468-96 ft.

Cooke County—Oil Discovery: Jas. L. Anderson et al's J. T. Mooney 1, 330 ft out nec of 150½-ac tract, or 4300 ft from m/s/s and 2500 ft from m/e/e lines of A. C. C. Bailey sur A-44, ½ mi sw of Wilson 2300-ft pool, elev 780 ft, pump 211 bbls, Basal Strawn sd 3933-43 ft.

Cooke County—Failure: Norwood & Frank Wood's Solomon 1, 330 ft nsl and 800 ft wel S.P. Ry. Co. 11, A-976, abnd 3006 ft.

Throckmorton County—Failure: Chalmette Pet. Corp.'s Perry 1-A, 330 ft out nec TE&L Co. sec 2165, elev 1260 ft, Bend 4198 ft, Mississippian 4770 ft, abnd 4860 ft.

NORTH TEXAS NEW PAY TEST

Cooke County—Wilson Field Deep Failure: Seitz-Comegys & Seitz, Inc.'s Mooney 1, 330 ft wel of 70-ac tract and 330 ft s of railroad, or 7000 ft from m/s/s and 2800 ft from m/e/e lines of A. C. C. Bailey sur, A-44, elev 823 ft, Ellenburger 4164 ft, abnd 4200 ft.

SOUTH CENTRAL TEXAS WILDCAT

Bastrop County—Failure: H. W. Snowden's Ada Potts 1, 330 fr ne&sel 50-ac lse, Eliz. Standifer Lge, sso, temp abnd 2074 ft.

SOUTHWEST TEXAS WILDCAT

Starr County—Failure: George R. Boyle's Loreto Canales 1, 498.2 fr nwl 4700 fr swl sh 3-B out of sh 2 Parcel B on 262.18-ac lse, Sacatosa Gr, abnd 1602 ft.

LOWER TEXAS COAST WILDCATS

Bee County—Failure: Sam E. Wilson, Jr.'s Page Est. 1, start sec 400-ac lse go 5383.3 w sw alg sely line lse th 467 n nw at ra to lcn, C. Rivas sur, perf Hockley 3700 ft, abnd 4530 ft.

Karnes County—Failure: Texon Roy. Co.-Alco Valve Co.'s P. J. Nieschwietz 1, 467 fr n&el blk 26 on 1873-ac lse, Gasper Flores Gr, abnd 6536 ft.

Kleberg County—Borregas Oil Discovery: Humble's King Rch-Borregas 1, 39,410 fr nl 34,295 fr el Santa Gertrudis Gr, 40,591-ac lse, pay 6889 ft, perf 19 shots 6889-95 ft, flow 40.03 bbls 38-gr oil, 0.1% wtr, ⅛-in, gor 5225/1, td 8549 ft.

Willacy County — Failures: Baldridge & King's W. P. Lincoln 2, 467 fr el tr 12, sh 3 and 735-ac lse, San Juan Carricitos Gr, abnd 8515 ft.

Phillips' W. S. Livingston 1, 330 fr n&el blk 1 and 793.28-ac lse, E. M. Surrenson's Arroyo sbdn, sh 6, San Juan de Carricitos Gr, abnd 12,002 ft.

LOWER TEXAS COAST NEW PAY TEST

Brooks County — Mariposa Oil Discovery: Humble's D. J. Sullivan C-2, 1980 fr sl 4320 w of m/sly/el TMRR sur 151 and 10,000-ac lse, 1800 nw of well 1-C, pay 9083 ft, open hole com flow 128 bbls 38.1-gr oil, 0.1% wtr, ⅛-in, tp 2560 lbs, gor 7240/1, td 9105 ft.

UPPER TEXAS COAST WILDCATS

Ft. Bend County—Failure: Jack W. Frazier's G. W. Trone Est. 2, 330 n nw jnkd hole 1, 200 sw of nel 320-ac lse, H&TC sur, Long Point area, abnd 4905 ft.

Wharton County — Failure: Humble's Tom Nichols 1, 560 w of el 660 n of sl sect 53 ETRR sur, El Campo area, abnd 7000 ft.

EAST TEXAS WILDCATS

Henderson County—Failure: Sohio Pet. Co.'s Belle Mandelstam 1, 330 ft out of m/w/nw corner of 320-ac tract and G. W. Baker sur, 3 mi se Poyner, elev 513 ft, top Navarro 2760 ft, Pecan 3408 ft, Austin 4585-4837 ft, Woodbine 5072 ft, abnd 6014 ft.

Rusk County — Failure: Standard Oil of Texas' Kangerga Bros. 1, 1804 ft from nw and 366 ft from ne lines of 279-ac tract, J. K. Campbell sur, elev 373 ft, Pecan chalk 3000 ft, Austin 3790-3973 ft, Woodbine 3973 ft, Comanche lime 4108 ft, abnd 4140 ft.

WILDCAT STARTS

CALIFORNIA

Kern County: Crawford and Hiles' Tejon 1, 30-11n-19w, Grapevine area, lcn.

Honolulu's Midway-Premier 22-48, 22-29s-21e, Cymric area, lcn.

Independent Expl. Co.'s Oceanic 2, 22-29s-21e, Cymric area, rur.

Standard of Cal.'s K.C.L. 24-37, 19-11n-22w, San Emidio area, rur.

Miller & York's Theta 2-A, 12-28s-19e, Antelope area, rur.

Gene Reid Drlg. Co.'s Hooper 1, 36-26s-27e, Mt. Poso area, lcn.

Orange County: McKee Oil Co.'s Community 1, 16-4s-9w, Olive area, rig.

COLORADO

Morgan County: Ohio-Tide Water's Associated 2, 30-5n-60w, Greasewood Flats area, dr 1100 ft.

FLORIDA

Hillsborough County: Humble's T. S. Jameson 1, ne ne 7-31s-22e, rds.

ILLINOIS

Clay County: Deep Rock Oil Corp.'s Given 1, nw nw se 4-2n-6e, lcn.

Nat'l Assoc. Pet. Co.'s Williams 1, sw ne se 33-5n-5e, dr.

Clinton County: H. J. Schlafley et al's Freund 1, ne sw ne 30-2n-1w, lcn.

Coles County: Tom L. Smith's Dole 1, se ne sw 7-11n-7e, lcn.

A. M. Myers et al's Phipps 1, re sw sw 21-11n-9e, dr.

Nat. Consumers Oil's Arthur 1, sw nw ne 2-12n-7e, lcn.

J. A. Mathews' Howland 1, se ne nw 12-13n-7e, dr.

Nation Oil Co.'s Donnell 1, se se sw 34-13n-7e, lcn.

Hageman & Ponds' Cramer 1, se se se 35-13n-7e, dr.

Cumberland County: W. W. Shaffer et al's Leach 1, sw nw ne 25-9n-8e, dr.

Nation Oil Co. et al's Phipps 1, ne sw nw 27-11n-7e, lcn.

Hamilton County: Dale Hopkins' Schearman 1, ne sw sw 2-6s-7e, lcn.

Dale Hopkins' Johnson 1, ne sw ne 24-6s-7e, lcn.

Madison County: E. A. Obering et al's Mosimann 1, nw se nw 28-5n-5w, lcn.

Shelby County: Skelly's Chestman 1, sw se ne 7-9n-3e, lcn.

W. W. Shaffer et al's Dappert 1, sw sw sw 2-9n-5e, dr.

Wayne County: J. J. Lynn's Smith 1, w½ sw ne 21-1s-7e, lcn.

Nu-Enamel Corp.'s Grubb 1, se ne se 21-1s-7e, lcn.

White County: Nat. Assoc. Pet.'s Hannah 1, ne ne nw 28-5s-10e, dr.

KANSAS

Rice County: B. C. W. Hyde, Jr.'s Loesch 1, c nw ne 26-20s-10w, lcn.

Stafford County: Olson Drlg. Co.'s Hart 1, sw sw ne 15-25s-15w, rur.

MICHIGAN

Arenac County: Sohio's Morley 1, nw sw nw 29-18n-4e, lcn.

Bay County: Sohio's State 1, se ne ne 1-17n-3e, lcn.

Gladwin County: Smith Pet. Co.'s Dow 1, sw sw sw 22-19n-2w, dr.

Gratiot County: Sohio's Joselh 1, se sw se 22-10n-4w, lcn.

Kalamazoo County: Homer Fulton's Lappin 1, sw sw sw 9-1s-12w, rig.

Mecosta County: Ashby Drlg. Co.'s Moss 1, c se 17-16n-10w, dr.

Montcalm County: Sohio's Doolittle 1, nw ne sw 11-11n-7w, dr.

Oceana County: L. H. Horn's Bowen 1, ne se sw 23-15n-18w, dr.

OKLAHOMA

Cotton County: T. H. McCasland's No-bah-nuck 1, ne ne ne 3-3s-12w, mog.

Seminole County: Big Chief Drlg. Co.'s Mathis 1, nw nw sw 35-6n-6e, woc.

WEST TEXAS

Crockett County: Geo. D. Morgan, trustee's J. S. Todd 1, c ne ne GC&SF Ry. 55, blk UV, lcn 1600-ft test.

WEST CENTRAL TEXAS

Eastland County: W. F. Brown et al's R. O. Jackson 1, 330 ft nsl and 298 ft wel of James Jett sur, subdiv 17, elev 1760 ft, lcn 3050-ft cabletest.

NORTH TEXAS

Archer County: Homer W. Snowden et al's J. E. Morrison 1, 1700 ft snl and 1900 ft ewl sec 1823, TE&L Co. sur, lcn 5500-ft Ellenburger test.

H. S. Grace et al's A. Schlimpf 1, 150 ft wel and 450 ft snl sec 37, blk 4, Clark & Plumb sur, lcn 1800-ft rotary test.

Cooke County: Trumter Pet. Corp.'s Mrs. A. Judy 1, 200 ft ewl and 685 ft nsl of Crowell & Hawley sur A-285, lcn 2000-ft cable test.

Hammon-Hanlon & Buchanan's T. J. Hudspeth 1, 150 ft out nec of 100-ac tract, Marshall University sur A-633, 2-2/3 miles east ny n of Valley View, lcn 1850-ft rotary test.

Nu-Enamel Oil Operating Co.'s M. Gwyn 1, 330 ft from ne and nw lines, or n corner of se 160 acres of M. Jennings sur A-531, 2 mi w of Lindsay, lcn 2000-ft rotary test.

Throckmorton County: E. W. Whitney et al's C. A. Turner 1, 330 ft out sec sec 982, TE&L Co. sur, 4000-ft test, dr 400 ft.

Wichita County: Wayne H. Hammon et al's Fassett-Tuttle 1-B, 467 ft wel and 3700 ft nsl (being MK&T Ry.) of blk 37, Cherokee CSL sur A-81, lcn 6000-ft Ellenburger test.

SOUTHWEST TEXAS

Webb County: O. W. Killam's J. G. Garcia 1, 330 fr sl 990 fr el blk 18 sur 592 on 160-ac lse, 2500-ft test.

LOWER TEXAS COAST

Bee County: Smith and Story-Wood Corp.'s Nat. Bnk of Comm. 2, 330 fr ne&nwl blk 37, Wangeman Rch sbdn, J. Poitevent sur, 5500-ft test.

Sam E. Wilson, Jr.'s Page Est. 1, (2nd hole), 50 fr Page Est 1 jnkd hole, 400-ac lse, C. Rivas sur, Wilcox test.

Hidalgo County: W. D. Kennard's Isabel Y. Garcia et al 1, 330 fr wl pore 42 and 440-ac lse 3000 fr nl lse, 4000-ft test.

Live Oak County: Newman Bros.-Rowan & Hope's Wm. Meyers 2, 467 fr s&wl 151-ac lse, M. G. Frazier sur, 4500-ft test, ru.

UPPER TEXAS COAST

Brazoria County: Jack W. Frazier's C. H. McLean & Carpenter 1, 330 fr s&el sw¼ sect 11, HT&B sur, 143.9-ac tr, 1½ mi n Hastings fld, 6500-ft test, set surf csg.

Harris County: J. K. Dorrance's Alice Myer 1, start m/ely/nec 1613-ac tr go 3874 nw alg nel lse th 990 sw at ra fr state hiway 290, W. Francis sur, Cypress area, lcn.

EAST TEXAS

Limestone County: Nu-Enamel Oil Operating Co.'s Eula Schulz 1, 330 ft from ne and 450 ft ewl of 127.8-ac tract, or 6250 ft from nw and 31,150 ft from ne lines of Pedro Varela sur, 4½ mi w Mexia, Woodbine test, set sur pipe.

Sunray Opens Office

Sunray Oil Corporation has opened a land and geological office in the Alamo National Bank Building, San Antonio, with R. H. (Bob) Alagood as district manager. Alagood, a native of Texas, received his B.S. degree in geology from the University of Oklahoma, and has had more than 12 years experience in Texas oil fields. His headquarters the last seven years have been in Corpus Christi, Texas.

The OIL WEEKLY'S TRADING POST

USED EQUIPMENT FORUM

CLASSIFIED ADS . . . EQUIPMENT . . . SERVICES . . . PERSONNEL

FOR SALE

■ FOR SALE: Rotary drilling rig complete. Cardwell Drawworks, International and Wakashaw Motor and Gardner-Denver pump, now operating in western Kentucky. Priced to sell. Get in touch with Ashby Brothers Drilling Company, 1906 St. Clair Avenue, East St. Louis, Illinois.

■ FOR SALE: Following surplus equipment located on lease at Leeville, Lafourche Parish, La.:

Four Heavy Duty Lufkin Pumping Units
TC-2-48
One Parkersburg Drilling Derrick
333M—24′ x 96′
One Parkersburg Pumping Derrick
159M—24′ x 96′
One Worthington Compressor
10½ x 4¾ x 12—6000# WP.

Might be interested in selling equipment for oil payment where secured or purchasing producing lease for installation. For additional information write Dallas Petroleum Company, 210 Construction Building, Dallas, Texas, Telephone Central-4900.

■ **Late Type Wilson Power Rotary Drilling Rig equipped with hydromatic brake, practically new, capable drilling 8000 feet. Complete in every detail, including 7500 feet first class drill pipe. For particulars telephone 1300 or write P. O. Box 2108, Longview, Texas.**

■ **CABLE DRILLING machines. Full line cable tools, also elevators, blocks, steam engines, boilers, 50 H.P. We rent fishing tools. S. W. Pressey, Pueblo, Colorado.**

■ FOR SALE: No. 3 National Drilling Machine, steel mast and steel sills—145 H.P. Hercules Diesel Drilling motor with Young reverse clutch — motor rebuilt — new sleeves, pistons, bearings, rebuilt crank shaft. A-1 condition. Price $5,000. CARPER DRILLING COMPANY, ARTESIA, NEW MEXICO.

POTENTIAL OIL LAND: 274-acre stock and crop farm—on railroad, river and good road seven miles northeast of Waco, Texas. Good hunting. Lake, two sets of improvements including modern brick house and dairy barn, electricity, gas. $100 per acre. E. B. Caldwell, 'phone Waco 5404.

HELP WANTED

■ WANTED: By The Superior Oil Company, young men with college background in electronics. Single men preferred. Write P. O. Box 96, Bakersfield, California. Apply 1425 Union Avenue, Bakersfield, California.

■ WANTED: By The Superior Oil Company, young men with college background in geology. Single men preferred. Write P. O. Box 96, Bakersfield, California. Apply 1425 Union Avenue, Bakersfield, California.

■ **Experienced seismograph Party Chiefs, Computers, Observers, Drillers, and Surveyors. Good opportunity for advancement in expanding geophysical company and eventually for foreign service if desired. Address: Box 10, c/o The Oil Weekly, Houston, Texas.**

EXPERIENCED
PARTY CHIEFS, PARTY MANAGERS, COMPUTERS, OBSERVERS, SURVEYORS, DRILLERS
are wanted for foreign seismic parties
UNITED GEOPHYSICAL COMPANY
595 East Colorado Street
Pasadena 1, California
822 Thompson Building
Tulsa 3, Oklahoma

■ Cable Tool Drillers for water wells. $1.25 per hour for first-class men. Time and a half for overtime. Write: Libby & Freeman, 721 W. Church St., Orlando, Florida.

HELP WANTED

■ ASSISTANT Micro-Paleontologist Stratigraphic correlation of well and surface samples. Degree, 3 or 4 yrs. experience. South American assignment. Preferably unencumbered. The Atlantic Refining Co., P. O. Box 7258, Philadelphia, Pennsylvania.

■ Men 33 or younger to train for technical sales work in Mid-Continent districts by manufacturer of production equipment. Technical education required. Familiarity with oil production practices desirable. Give complete details of yourself in first letter. Address: Box 79, c/o The Oil Weekly, Houston, Texas.

SITUATIONS WANTED

■ Competent airplane pilot with 18 years flying experience, pilot's license and army training background desires employment patrolling pipe line systems; preferably in Kansas, Oklahoma or Texas. M. L. Russell, 602 North Pershing, Wichita, Kansas.

■ Young Geologist three years experience on drilling wells wildcat and field core drill desires change. Address: Box 80, c/o The Oil Weekly, Houston, Texas.

NOTICES

■ MONEY TO PURCHASE oil loans, oil payments and oil royalties in Texas, Oklahoma and New Mexico. Baptist Foundation of Texas, 201-03 Baptist Building, Dallas 1, Texas.

■ Practical Operator with 20 years experience and versed in fundamental geology, desires contact with company or individual to finance preliminary work in new play now starting in Oregon by major companies. Address: Box 78, c/o The Oil Weekly, Houston, Texas.

■ Just leased 4500 acres in Trend and on Surface, Subsurface and Geophysical High. Have good geological report also. 3500 feet will test all formations. Need drilling help only. J. Bell, 1907 Hope Street, Dallas, Texas.

SERVICES

RENTAL TOOLS

■ We have everything in Rotary Equipment for Rent including complete Power Rigs.
10,000 ft. 2½″ External Upset, Internal Flush Drill Pipe.
8,500 ft. 2½″ Regular Acme Range 1 Drill Pipe.
18,000 ft. 3½″ External Upset, Internal Flush Drill Pipe.
2½″, 3½″, 4½″ & 6″ Kellys, Drill Collars, Swivels, Rotary Tables, Power Pumps, Crowns, Traveling Blocks, Hooks, Drilling In Tools, & Blowout Equipment.
Address: **Phil A. Cornell,** 1331 S. E. 29th St., Capitol Hill Station, Oklahoma City, Oklahoma.

POSITIONS WANTED BY SERVICE MEN

■ Civil Engineer. Age, Thirty-nine. Married. Two children. Speaks, reads and writes Spanish. Thoroughly qualified to take charge of constructing for production, refining and marketing division. Edward H. Gessner, 539 Lake Street, San Francisco 18, California. Available 15 January, 1946.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, takes flat-rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for the first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, The Oil Weekly
P. O. Box 2608 Houston 1, Texas

Use the Trading Post for Equipment, Services and Personnel

BOOK REVIEW

Standards

American Society for Testing Materials, Philadelphia, has published "Standards on Petroleum Products and Lubricants," for 1945. The book brings together in convenient form over 80 specifications, tests, and definitions that have been standardized through the work of Committee D-2 on petroleum products and lubricants.

In addition to the current report of the committee, there are several appendices covering the following: results of tests on method for estimating maximum pour points of lubricating oils containing pour point depressants, and two proposed methods covering a test for maximum pour point and total olefinic and aromatic hydrocarbons in gasoline.

The specifications cover cut-back asphalts—rapid and medium curing type, emulsified asphalts (five types), petroleum spirits, Stoddard solvent, thermometers, fuel oils, gasoline, etc.

The large number of test methods provide authoritative procedures for determining properties of a wide range of petroleum products.

Gas Analysis

The Technical Section of the American Gas Association, New York, has sponsored and published a book, "Gas Analysis and Testing of Gaseous Materials" V. J. Altieri, chief chemist, Eastern Gas and Fuel Associates, of Boston, is the author.

The new book contains 560 pages of practical information for the chemists, engineers and technicians of the industry. New subjects constitute about ¾ of the text. Included are chapters on kinds of materials, processes, properties and composition of gases, measurement of quantity and flow, selection of method of sampling, operations and calculations of gas analyses. Other chapters are devoted to specific methods, tests and facilities showing usefulness of gas analyses and testing of materials and processes in the gas phase.

The book is priced at $5 to members of the association, and $7.50 to nonmembers.

Merchant Marine

"This Time Let's Keep Our Merchant Marine," is the title of a new booklet published by Westinghouse Electric Corporation, Box 868, Pittsburgh, Pennsylvania.

After reviewing the varied history of our merchant fleet, the 30-page illustrated booklet states the problems to be faced; we must decide how big a merchant fleet is consistent with sound national policy; we must decide how these ships will be employed in peacetime; and we must decide what to do with our "surplus" fleet—the Liberty ships—and whether or not we should keep all our efficient ships—the Victorys, tankers and C-type cargo ships.

Arc Welding

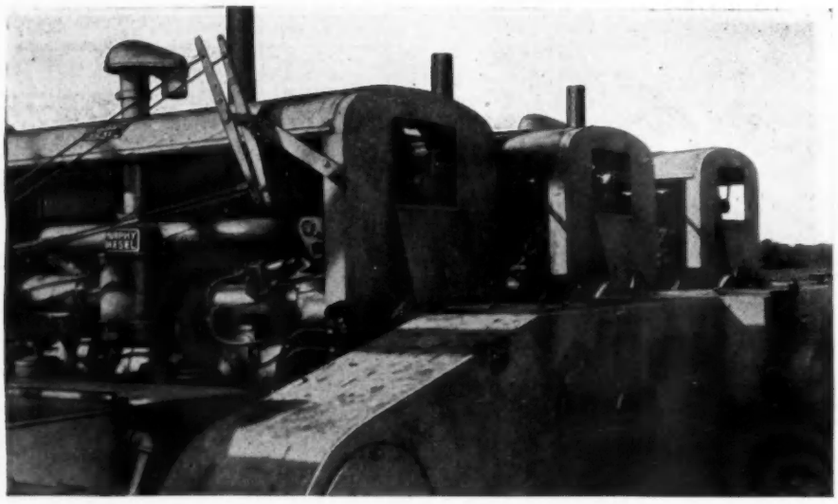
The Lincoln Electric Company, Cleveland, Ohio, has published a second edition of "Lessons in Arc Welding," which presents in a concise manner certain fundamental facts of welding. The series of lessons comprising the book forms the basis of instruction in The Lincoln Arc Welding School, and is based on the experiences of Arthur Madson, instructor. Price of the book is 50 cents and it may be secured from the company, from any representative of the company, or through book dealers.

Hydraulic Drives

Twin Disc Clutch Company, Racine, Wisconsin, has published an issue of *Production Road*, the company house organ, on hydraulic drives as applied to a wide variety of industrial installations.

Questions regarding selection of the best type of hydraulic drive for a particular type of application are answered under the heading of "Converter or Coupling?" a non-technical article of importance to the manufacturers and users of all types of powered industrial equipment and machinery.

The construction, operation and application of both types of hydraulic drives are fully and simply discussed in this article.



THREE MURPHY DIESEL Model ME-66 full Diesel Engines, 6x6½", 6 cyl., each rated 150 HP continuous, 180 HP intermittent, provide combined 450 HP continuous, 540 HP intermittent, powering a Unit Rotary Drilling Rig for Tex Harvey Oil Company, De Kalb, Texas

More MURPHY DIESEL Power
FOR TEX HARVEY OIL COMPANY

MULTIPLE hook-ups of MURPHY DIESEL units can be made to provide any required power for all types of oil field service . . . with assurance of dependability and economy. MURPHY DIESEL low-cost power has proved its value on drill rigs, mud pumps, sub-station power plants, booster pumps and compressors and other stationary and portable power plants. Rugged, compact, easy to start in any weather, economical to operate and maintain . . . these are reasons why MURPHY DIESELS continue to live up to their reputation for more power, more profit.

Buy Victory Bonds

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TULSA BRANCH: 416 S. Detroit Ave., Tulsa 3, Okla.

More Power
MURPHY DIESEL
More Profit

Engines: FROM 90 to 215 HP
Generators: FROM 60 to 115 KW

"FIELD-PROVEN Power"

222A

SQUEAKS from the BULL WHEEL

Seeing Double

"Is that girl's dress torn or am I seeing things?"

"Both."

Mutual Acquaintance

"I bought her a fine dinner, took her to the best show in town, then to a night club, and do you know what she said?"

"No."

"Oh, so you've been out with her, too."

Force of Habit

"Where did you learn to kiss like that?"

"Siphoning gas."

Without Interest

"Mother, what is alimony?"

"A married man's cash surrender value."

Beating Around the Bonnet

"Dear, I saw the sweetest hat downtown today."

"Well, put it on and let's see how you look."

Minor Transaction

"You took that little blonde from the notions department home last night, didn't you?"

"Yep, and kissed her good night."

"What did she say then?"

"She said, 'Will that be all, sir?'"

Poet's Nook

A charming young lady named Stopper
Committed a bad social cropper;
She went to South Bend
With a gentleman friend—
The rest of the story's improper.

The Soft Word

"The very idea of a big man like you begging for his breakfast. You're plenty strong enough to work."

"I know, madam, and you are beautiful enough to be on the stage, but evidently you prefer the simple life."

"Well, come in and I'll see if I can find you a steak."

Braille System

"I told him he mustn't see me any more."

"And what did he do?"

"Turned out the lights."

A Few, Maybe

"It says here in the paper that in India a man can buy a wife for $2. Isn't that awful?"

"Oh, I dunno. A good, strong wife is worth that much."

Or String Her Along

"My wife writes me that she's all unstrung. What shall I do?"

"Send her a wire, quick!"

Time to Change

"So you want a job. What was your former occupation?"

"Sticking my right arm into a lion's mouth."

"And what is your name?"

"Lefty."

Beat Me, Daddy

"What! You mean to say this man choked a woman to death in a night club in front of 200 people, and nobody interferred?"

"That's right, Judge. Everybody thought they were dancing."

Single Goal

Said the tourist to the Indian on the reservation: "What do you do all day?"

"Hunt and drink."

"What do you hunt?"

"Drink."

Hair's Breadth Away

"Johnson says he is in close touch with the heads of several big concerns."

"Yep, he's a barber."

Needed to Fill Column

The little boy and his mother stood looking at the dentist's showcase. The boy, pointing, said: "If I had to have false teeth, Mother, I'd like that set."

"Hush, Junior. Haven't I told you not to pick your teeth in public?"

ECOLITE-92BM

With Locking Device and Seals

TWICE APPROVED For DOUBLE SAFETY

APPROVED BY U. S. BUREAU OF MINES & UNDERWRITERS' LABORATORIES

—for use in atmospheres containing Methane or natural gas, gasoline or petroleum vapors. This double-safety lantern has a tamper-proof reflector and cover with locking device and seals. Throws 1500 ft. beam. Instantly ejects broken bulbs from battery circuit. Large handle—360° pivoting feature gives direct illumination where needed and leaves both hands free for work.

Now at Supply Stores

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Analytical and Consulting Chemist
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Oil Field Brines, Waters and Cores
Complete Evaluation of Crude Oils

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MAGNETOMETERS: The finest instruments for oil surveys. High sensitivity, fully temperature compensated, clear scale, and you can take more readings per day. Write for fully illustrated catalogue.

Wolfson Instruments Corporation of America
70-86 West Chippewa Street
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"Best Bet Yet"

CLEAN RODS

New

PARAFFINE REMOVER STYLE SUCKER ROD WIPER

Patterson-Ballagh's Sucker Rod Wipers are made in two styles, the regular Universal Style and the Paraffine Remover Style. These wipers offer effective means of completely stripping the rods of oil and muck, no matter how sticky. Both are completely housed and are practically automatic in operation. Each model is available with either plain head or safety cap style head. Release of these heads is easily accomplished by loosening the hammer nuts, allowing the eye bolts to swing free, permitting instant removal.

The wiping is done by self-aligning reinforced discs of tough, wear-resisting PBX Synthetic Rubber. The discs are made in four sizes for wiping ⅝", ¾", ⅞" and 1" rods. Bodies are cast steel. There is nothing to wear except the easily replaced PBX Synthetic Rubber Wiper.

The Paraffine Remover Style illustrated above has two side outlets for the discharge of excess paraffine, removed by the special cone-shaped refill that is located just at the junction of the two outlets. Patterson-Ballagh Sucker Rod Wipers are time and money savers and mean cleaner production.

See Composite Catalog

Patterson-Ballagh SUCKER ROD WIPER

Los Angeles 1 Houston 10 New York 6

"More Power To You"

A Most Practical NEW YEAR'S WISH

Make it a fact with

SAND-BANUM

"The Entirely Different Boiler and Engine Treatment"

Though your boiler is one year older, Sand-Banum aids it to regain and maintain its youth. It automatically and safely removes AND prevents boiler scale and corrosion.

Clean heat transfer surfaces mean less fuel, longer life and more power.

Comes and stays ready to use, regardless of water or operating conditions. Makes water analyses, special equipment and mixing unnecessary.

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and at other convenient points including leading supply houses
Export Representatives
PETROLEUM MACHINERY CORP.
30 Rockefeller Plaza New York 20, N. Y.

MEN IN THE INDUSTRY NEWS

M. W. Young has resigned as district landman of the Southwest Texas district, Houston Oil Company of Texas, with headquarters at Beeville, to become an independent operator. He will be associated with **J. M. Hancock,** with offices in the Commercial National Bank Building at Beeville. Young was with Houston Oil Company for 20 years, while Hancock formerly was with Union Producing Company and Southern Minerals Corporation.

R. E. Blewster has been transferred from the Houston office of Houston Oil Company to San Antonio, where he will be landman in the Southwest Texas district.

J. Paul Jones of Bradford, Pa., director of production for the Pensylvania Grade Crude Oil Association, has been appointed a member of the Sanitary Water Committee of the Pennsylvania State Chamber of Commerce.

Dr. Ben H. Parker, formerly of Oklahoma City, has been appointed president of the Colorado School of Mines at Golden, Colo., succeeding **Dr. M. F. Coolbaugh,** who retired last October. Parker was born in Oklahoma City, attended Oklahoma University and the School of Mines, where he later joined the faculty staff. He served the Argentine government in the capacity of geological consultant and upon his return to the United States was affiliated with several major oil companies.

Hugh O'Keefe has joined Davon Oil Company at Oklahoma City and will have charge of the geological and land departments. He was formerly assistant chief geologist for Phillips Petroleum Company.

W. S. Norman has been named district manager of the sales department of Magnolia Petroleum Company for Oklahoma, succeeding the late **Roy Green.** Norman has been with Magnolia more than 30 years.

Ralston P. Edmunds, member of the legal staff of The Carter Oil Company at Tulsa, has joined the staff of Creole Petroleum Corporation at Caracas, Venezuela, and has left Tulsa to take up his new South American appointment.

Bruce A. Royer has joined the general sales staff of Caterpillar Tractor Company and will be temporarily assigned to the sales training division. Royer comes to "Caterpillar" from R. G. LeTourneau, Inc., where he was field engineer and director of market research.

Bruce A. Royer

E. A. Bence has been named assistant to **R. D. Baker,** president and managing director of Standard Oil Company of British Columbia, Ltd. Bence returned to Standard at Vancouver in October after serving three years with the RCAF and later with the judge advocate-general at Ottawa.

Paul Brower, eastern division manager, Socony-Vacuum Oil Company of Venezuela, with headquarters in Caracas, is in Houston on a combination business trip and vacation.

Leslie Coleman has been elected vice president of the Bank of Manhattan Company, New York, in charge of the bank's southern division. He was formerly with the Second National Bank, Houston, as vice president in charge of oil loans. After graduating from Rice Institute and Harvard Law School, he joined the staff of the San Jacinto Trust Company of Houston. When the war started he became a major in the Army and was placed in charge of civilian personnel of the Army Air Forces, Central Flying Command, Randolph Field, Texas.

R. A. Brannon, senior corrosion engineer for Humble Pipe Line Company, has been named assistant to the assistant general superintendent of the company, replacing **R. J. O'Connell,** who resigned to accept a partnership in the Oklahoma Contracting Company. Brannon will also continue his duties as senior corrosion engineer.

Charles Lamphere has retired as manager of the Oklahoma Gas & Electric Company at Alva, Okla., and has been succeeded by **Gully Middaugh.**

E. G. Starr, president of Universal Consolidated Oil Company, Los Angeles, is vacationing at Phoenix, Ariz.

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WELL SERVICE COMPANY
J. M. (Skeete) O'MELVENY, Owner

Specializing in shallow drilling and deep work-over work.

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Room 223 Nixon Building
Telephone 29502
CORPUS CHRISTI, TEXAS

Firman G. Hoyt, salesman for the past six years at the Los Angeles Branch of John A. Roebling's Sons Company, has been promoted to product sales manager of the Woven Wire Fabrics Division of the company at Trenton, New Jersey.

He succeeds **W. K. Paff,** retiring after 50 years service with the company.

Firman G. Hoyt

Everett P. Green, for 18 years associated with the firm of Peat, Marwick, Mitchell & Company, has been admitted to partnership in the accounting firm of Henslee & Hopson of Houston, and the firm name has been changed to Henslee, Hopson & Green.

M. L. Mayfield will talk on "Future Outlook for Gas Transmission Lines" before the Gulf Coast AIMME January 8 at the Texas State Hotel, Houston. A technicolor film, "Gas," will be presented by **W. B. Poor** of Tennessee Gas & Transmission Company. Officers will be elected.

Donald P. Eckmann, engineer of Brown Instrument, Industrial Division of Minneapolis-Honeywell Regulator Company, is the author of a new book, "The Principles of Industrial Process Control," published by John Wiley & Sons, New York.

Alverd C. Stutson has been appointed chief engineer of the technical division-industrial section of Socony-Vacuum Oil Company, Inc., succeeding **W. G. G. Godron,** retired. **Gerald J. Van Liew,** staff engineer, has become assistant chief engineer, formerly held by Stutson.

J. W. Pittman, formerly superintendent in the Kilgore district, has returned to Shell Oil Company after four years in the Army. Pittman went on active duty in December, 1941, and as a lieutenant colonel was commanding officer of an infantry battalion in the 91st Division, participating in the Italian campaign. Pittman has been in the employ of Shell since 1934. He is now district superintendent on special assignment, attached to the Lake Charles headquarters of the Louisiana division.

O. L. Odale has returned to Shell Oil Company after five years in the Navy. He recently completed his terminal leave, and was relieved from active duty with the rank of commander. A native Californian and a graduate of Stanford University, Odale has been with Shell since 1933. He resumes the position of mechanical engineer for the Midland, Texas, division.

Dr. Frank B. Counselman has joined the geological staff of the Great Lakes Carbon Company and is stationed at Abilene, Texas. He was recently released from military service and had previously been affiliated with Gulf Oil Corporation in Texas.

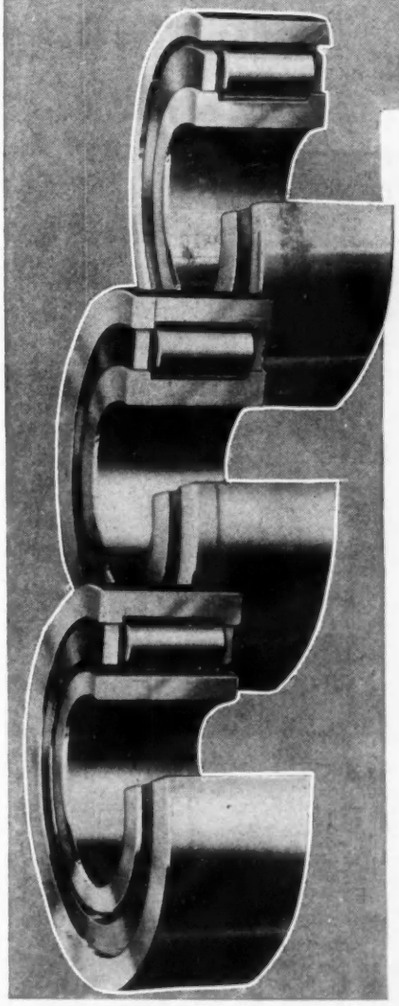
E. B. Roudebush joined the scouting department of Gulf Oil Corporation and was assigned to the Oklahoma City district following his discharge from military service.

Don R. Knowlton, vice president in charge of foreign operations for Phillips Petroleum Company, is investigating oil possibilities for his company in the Middle East. For the past two years he has been in charge of operations in Mexico and South America.

George N. LaMont of Houston, distributor of oil well supplies, has opened an office in the McBirney Building, Tulsa, with **C. Lewis Mims** in charge.

Big Smoothies

AMERICAN RADIAL ROLLER BEARINGS



For nearly every application where the load is radial you'll find an AMERICAN RADIAL ROLLER BEARING to meet your requirements. Engineered to exacting standards, precision tested, specially designed for smooth, reliable operation under tremendous loads, AMERICAN RADIAL ROLLER BEARINGS function flawlessly in the heaviest equipment built and under the most rigorous operating conditions encountered in any industry.

AMERICAN RADIAL ROLLER BEARINGS come in 5 styles, 4 S.A.E. series and 85 sizes. Special designs to order are also available. Our engineers will cooperate with your own technical staff on all your roller bearing problems.

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PITTSBURGH, PENNSYLVANIA
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AMERICAN Heavy-Duty ROLLER BEARINGS

MEN IN THE INDUSTRY NEWS

Grady H. Vaughn, G. H. Vaughn, Jr., and **R. U. Maddox,** all of Dallas, have been given a Texas permit to organize the Engineering Development Company, Inc.

Harold J. Ritter has been elected president, treasurer, and a member of the board of directors of Norma-Hoffman Bearings Corporation, Stamford, Conn. He succeeds **O. P. Wilson,** resigned. Ritter was formerly associated with the company for 28 years, but resigned in 1944.

John C. Shaw, Shreveport, district superintendent of Magnolia Petroleum Company, retired January 1 after 29 years of service.

Don R. Gladney, superintendent of the right-of-way and claim department of Magnolia Pipe Line Company, Dallas, and **R. G. Sanders,** assistant manager of refineries for Magnolia Petroleum Company, Beaumont, were elected directors of Magnolia Pipe Line Company, January 1.

GOODE

"Double Seal"
WING UNION

See those two ground joint seats in the enlargement of the sub-ends! They mean you not only get double security of the seal, but double life with this union. Should one seat become scored, the other will maintain a perfect seal.

Goode "Double Seal" Wing unions are available in a complete range of sizes, from 500 to 5000 pounds working pressure. The 6000 pound union has removable brass seat . . . all others have steel to steel seat. Every union pressure-tested before shipment. Ask your supply store or write direct.

GOODE EQUIPMENT CO. INC.
1419 CARR ST. · HOUSTON, TEXAS · CAPITOL 6338

Export Distributor: HUNT EXPORT CO., 19 Rector St., New York, N. Y.; Avda Roque Saenz Pena 832, Buenos Aires, Argentina
California Distributor: BETTIS RUBBER CO., Ltd., 1557 So. Esperanza St., Los Angeles, Calif.

W. Fred Rollins, Fort Worth division pipe line superintendent for Gulf Refining Company since September, 1919, and an employe of the company and its predecessor since 1906, retired January 1. He began work for the company at the age of 19 as a machinist at Beaumont, Tex., then switched to pipe line and booster station construction. He was promoted to construction superintendent in the Fort Worth division in 1918, and a year later was placed in charge of the division. He will devote his time to a well stocked farm near Fort Worth.

Paul Weaver, Gulf Oil Corporation, Houston, spoke before the Tulsa Geological Society on "The Geological History of Formation of Salt Deposits."

Frank Miller recently was awarded a 50-year service pin by Hewett Rubber Corporation. He is vice president, with headquarters in the Chicago office.

John V. Felter has joined Eutectic Welding Alloys Company, New York, as regional field engineer and will have headquarters in the M. & M. Building, Houston.

Deaths

Martin G. Jeffries, 64, of San Antonio, retired oil operator and founder of the Reliance Oil Company of Shreveport, died December 29.

Clarence Otto Doss, 55, Oklahoma City oil man, died December 21. He was born in Beebe, Ark., and moved to McAlester, Okla., in 1915, there organizing the Doss Oil Royalty Company. He later moved to Oklahoma City and organized the Doss-Jones Oil Company. He recently sold his holdings in East Texas and in several Oklahoma oil fields and operated independently.

Ray Branstetter, 58, pioneer oil man of Skiatook, Okla., and former mayor of the town, died December 28. Bradstetter was the discoverer of an Arbuckle limestone oil pool near Skiatook which bears his name. He was a native of Paris, Mo., and moved to Oklahoma in 1905.

Carl L. Bryant, 46, drilling and trucking contractor, died December 29 in San Angelo, Texas, where he had resided three years.

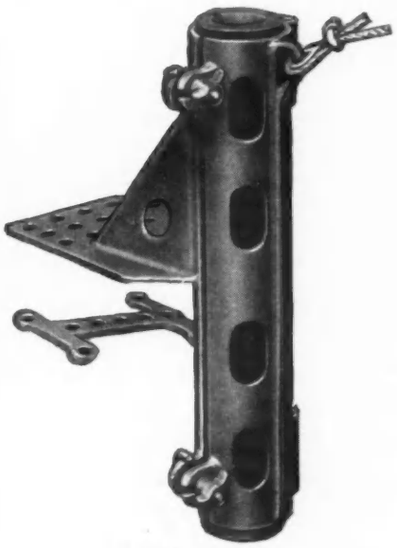
George B. Blackman, 57, pioneer driller in North Texas who helped bring in some of the early discoveries during his 34 years of activity, died December 31 in Electra, Tex.

Guy A. Davis, 42, manager of the Highland Oil Company, died in San Antonio, December 31.

1—Stabilizer, Bumper

Patterson-Ballagh Corporation announces a new dead line stabilizer, a shock absorbing bumper, and a mud gun for high pressure service.

In the stabilizer, the only wearing

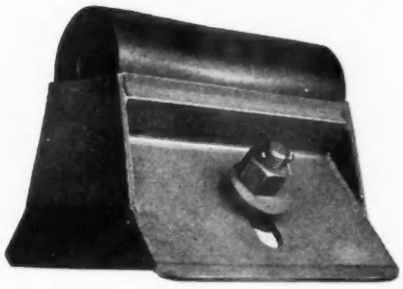


Dead Line Stabilizer

part is the oil-proof PBX synthetic rubber lining, installed in sections and easily replaced. The stabilizer does not bend the line, allows freedom of movement, and prevents wear on the line, according to the manufacturers. Also, whipping of the line is avoided.

The stabilizer is obtainable in two and four sections. For most derricks the four-section style should be used. For short derricks and rigs without finger boards, and as a device to protect the weight indicator, the two-section style is preferable. Weight of the four section is 115 pounds, and the two-section, 70 pounds.

The shock-absorbing bumper is for



Traveling Block Bumper

installation on top of the traveling block. A thick cylinder of PBX rubber absorbs the shock should the block be inadvertently pulled into the crown, a feature said to be of special importance in portable, or "blitz" type rigs where the driller is unable to see the crown block from his station.

Framework of the bumper is a steel assembly bolted to the traveling block for which it is made. The rubber bumpers are of large diameter and cover the whole face of the block. The rubbers are made in sections and are firmly attached to the frame by a bar that extends inside the full length of the bumpers, and have a number of bolts attached so that, regardless of the violence of the blow, the rubbers cannot fall.

The high pressure mud gun is equipped with locking devices for vertical and horizontal adjustments. Of all-steel construction, the gun weighs 68 pounds. Faced packing glands are of polished chrome. Swivels are in the vertical and horizontal plane. The nozzle is of hard metal or synthetic rubber lined. A steel handle directs the flow and no pressure is exerted on the handle. Other features include a vertical lock, large packing gland capacity, enlargement at gland for free flow, both bends reinforced, horizontal lock. The tendency to spin is eliminated since the center line of the gun passes through the center line of discharge.

(Check item 1 on coupon for more information.)

2—Aluminum Coating

Reilly Tar & Chemical Corporation has developed a new aluminum coating which is said to combine the appearance of aluminum with the corrosion-resisiting qualities of coal tar. The coating can be either sprayed or brushed on, and will not flow during or after drying. It is claimed that after drying it will not crack, check or peel on exposure to temperatures as low as minus 30° F., or flow at temperatures as high as 160° F.

While designed primarily for use on metal surfaces which are exposed to the atmosphere, to excessive heat or moisture, chemical fumes and gases, and other corrosive agencies, the coating can also be used on cement, tile, wood and brick. Applications include storage tanks for oil, gas, gasoline, and water; metal buildings, towers, stacks, truck and trailer bodies, tractors and other equipment.

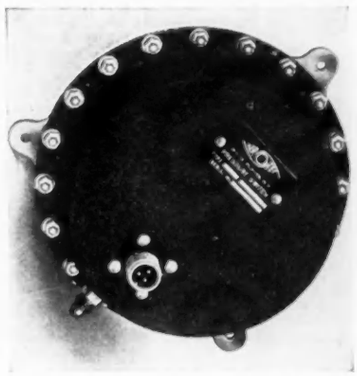
The coating is furnished mixed and ready for application in one and five gallon cans and 55 gallon drums.

(Check item 2 on coupon for more information.)

3—Pressure Switch

Aerotec Company has developed a diaphragm pressure switch which is said to have sensitivity of 1/100 of an inch of water on stationary applications.

The instrument may be adjusted by



Aerotec Diaphragm Pressure Switch

means of two knobs to any pressure value desired. For accurately determining these pressures, a draft gauge may be connected in parallel with the switch.

(Check item 3 on coupon for more information.)

4—Solvent Cleaner

The Optimus Detergents Company has introduced a new solvent cleaner, Optimus Solvent No. 2, recommended for removing grease, oil, carbon, grit and miscellaneous shop dirt from metal parts.

Though compounded to give maximum cleaning strength in operation, Optimus Solvent No. 2 will not harm metal surfaces or operators' hands.

This product will combine in kerosine or other hydrocarbon diluent, and remove soil from work by solvent cleaning action. In spray-type washing machine operations, it may be diluted at a ratio of one to seven parts in fuel oil. Pressure of 20 pounds has been found sufficient.

(Check item 4 on coupon for more information.)

Use This Convenient COUPON for Additional Information

Check below the numbers identifying items on which you want additional information. Mail coupon to The Oil Weekly and your request will be forwarded to the manufacturer.

THE OIL WEEKLY
P. O. Box 2608, Houston 1, Texas, U.S.A.

Please have manufacturers send me, without obligation, more information on items shown in January 7 issue of The OIL WEEKLY as checked below:

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

In addition to information checked above, I would like more data on products or services advertised elsewhere in this issue by _____ Company

Name _____ Title _____

Company _____

Address or P. O. Box _____

City _____ State _____

(To avoid delay PRINT or TYPE clearly name, company and mailing address)

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Service
DRAGLINES
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Slush Pits, Foundations
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Phone 2 6860

See LAMTEX, Composite Catalog, pages 1570-1571

NEW EQUIPMENT . . . LITERATURE

5—Pipe-Coating Calculator

The Barrett Division, Allied Chemical & Dye Corporation, has developed a pipe-coating calculator for oil, gasoline, gas-distribution and transmission systems.

The calculator is of convenient pocket size and gives the following information at a glance:

The number of gallons of primer, in approximate quantities, for external pipe diameters from 2.375 inches up to 28 inches, per 1000 feet and per mile for new pipe, and the same information for rough pipe.

The quantity in 100 square feet of asbestos pipeline felts for external pipe diameters from 2.375 inches through 28 inches, the pipe surface area square feet per mile, the number of squares per 1000 feet, and per mile.

The number of pounds of pipe line enamel, approximate quantities, for external pipe diameters from 2.375 inches to 28 inches, in 2/32-inch thickness per 1000 feet and per mile, in 3/32-inch average thickness per 1000 feet and per mile, and 3/32-inch minimum per 1000 feet and per mile.

The number of pounds of waterworks enamel for pipe diameters from 2.375 inches to 28 inches, in 2/32-inch minimum thickness per 1000 feet and per mile, in 3/32-inch average thickness per 1000 feet and per mile, and in 3/32-inch minimum thickness per 1000 feet and per mile.

ENAMEL

BARRETT PIPELINE ENAMEL — IN POUNDS

APPROXIMATE QUANTITIES
COATING THICKNESS

EXTERNAL PIPE DIAMETER	2/32" MINIMUM PER 1000 FT.	2/32" MINIMUM PER MILE	3/32" AVERAGE PER 1000 FT.	3/32" AVERAGE PER MILE	3/32" MINIMUM PER 1000 FT.	3/32" MINIMUM PER MILE
2.375	430	2.280	520	2.760	610	3.190

WEIGHT PER CU. FT. 85 LBS. — WEIGHT PER DRUM APPROX. 550 LBS.

BARRETT PIPELINE ENAMEL, 180° - 190° - 200° (F) softening point, is a combination of coal-tar pitch and non-porous flake mineral, highly resistant to moisture absorption, having a high dielectric value, and low in Specific Gravity requiring fewer tons per unit area when applied to an identical thickness.

Barrett PIPE COATING CALCULATOR
for OIL - GASOLINE - GAS - DISTRIBUTION & TRANSMISSION SYSTEMS

BARRETT WATERWORKS ENAMEL - IN POUNDS

APPROXIMATE QUANTITIES
COATING THICKNESS

EXTERNAL PIPE DIAMETER	2/32" MINIMUM PER 1000 FT.	2/32" MINIMUM PER MILE	3/32" AVERAGE PER 1000 FT.	3/32" AVERAGE PER MILE	3/32" MINIMUM PER 1000 FT.	3/32" MINIMUM PER MILE
2.375	490	2.580	590	3.100	690	3.600

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BARRETT FIELD MANUAL details field procedures, enamel application temperatures, factors to use for unavoidable waste, different methods of application, inspection, pipe handling requirements, shielding and other information to establish good coating practice.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
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(Check item 5 on coupon for more information.)

Literature

6—Arc Welding Electrodes

Wilson Welder & Metals Company has issued a 32-page illustrated catalog which provides a guide to the proper selection of arc welding electrodes.

This catalog supplies complete data on the proper electrodes to be used for all types of work on a wide variety of base metals, and describes the approved welding procedures for each application.

Electrodes are recommended for use on mild steel, alloy steels, low alloy high tensile steel and stainless steels. Additional sections are devoted to electrodes designed for non-ferrous metals such as aluminum bronze, aluminum, and manganese bronze.

Chemical analyses, specifications, and other engineering data are supplied for each electrode.

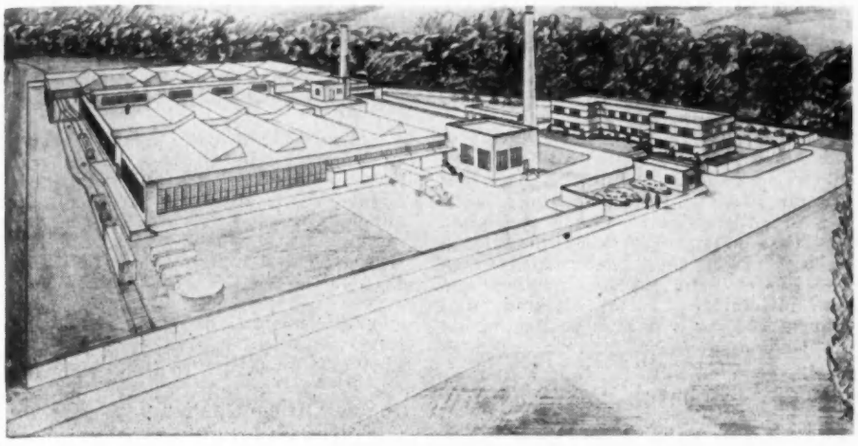
(Check item 6 on coupon for more information.)

Use the Coupon

For free copies of Manufacturers' Literature or more information on products described on these pages, use the convenient mailing coupon on page 61.

MANUFACTURERS' NOTES

Wheeling Company Builds West Virginia Plant



Wheeling Machine Products Company, Wheeling, W. Va., is constructing a modern manufacturing plant which with its office building and equipment will cost in excess of $1 million.

The main plant will be 417 feet long and 350 feet wide. The two-story office building will be air-conditioned.

The new plant will give three times the floor space now available at the present plant at Warwood, which will operate as usual until the new plant is ready for occupancy.

Founded in 1918, Wheeling Machine Products Company has about 350 employes and this figure will be greatly expanded when operation of the new plant is begun.

Research Department Formed By Emsco Derrick Company

Emsco Derrick & Equipment Company has formed a research department to be devoted exclusively to the development of new products. During the war, the company devoted a substantial portion of its facilities to the development of new equipment for use by the armed forces. The formation of the new department is a projection of these war-born research and design operations into the coming civilian economy.

G. R. Tremolada

The department will be headed by G. R. Tremolada, chief research engineer, who has been with Emsco since 1926. Born in Milan, Italy, he is a graduate of the Institute of Mechanical Technology, Santa Barbara Oriana of Milan. After graduating, he was appointed designer-engineer at the Isotta-Fraschini plant. Later he functioned as chief engineer for Bianchi-Canions Company. He then joined the Shibler (now Mulag) Company in Aachen, Germany, as consultant engineer, and acted in the same capacity at the Minerva Motor Car Works in Antwerp, Belgium. In 1917 Tremolada was affiliated with the Northwest Motor Company in Detroit, and the Pontiac plant.

Edward Firm Renamed

The Edward Valve & Manufacturing Company, East Chicago, Ind., has been renamed Edward Valves, Inc. The company is a subsidiary of Rockwell Manufacturing Company.

Crum Lynn Foundry Built by RFC Is Acquired by Steel Men

The Crum Lynn Foundry, at Chester, Pa., has been acquired by a group of steel men and is now in operation. The foundry was built by the Reconstruction Finance Corporation and operated by the Atlantic Steel Casting Company during the war. The new company is known as the Chester Electric Steel Company and will specialize in carbon alloy and stainless steel castings.

Fred Grotts

Fred Grotts heads the new concern. He was formerly president of Fort Pitt Steel Casting Company, vice president of Lebanon Steel Foundry, and superintendent of the American Steel Foundries.

Other officers include Stanley J. Roush, vice president and treasurer; William Burroughs, plant manager, and Sam Nicholson, sales manager.

J. A. Jones Construction Opens Office In Houston

The opening of a petroleum and chemical division with offices in the Scanlan building, Houston, has been announced by the J. A. Jones Construction Company, Inc. of Charlotte, N. C.

J. J. Allinson, recently chief resident engineer on the atomic bomb project at Oak Ridge, Tennessee, is vice president, and Gordon T. Granger, recently director of refining, District III, PAW, is manager of the new division.

ROPE "...in the course of Human Events"

ROPE was used to moor the famous dirigible ZR-3 (the Los Angeles). The mighty airship left Friedrichshafen, Germany on October 12, 1924, and descended at Lakehurst, New Jersey, on the morning of October 15, completing one of the most talked-about trips in history.

Dirigibles, for the present at least, have lost their popularity —but Rope will continue to play a significant part in the industries of the present and future. Until you can once again buy New Bedford Manila Rope, take care of what you have. You may find our free pamphlet "Care & Conservation of Rope" a help. We'll mail it on request.

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TECTONIC MAP of the UNITED STATES 1944

Prepared under the Direction of the Committee on Tectonics, Division of Geology and Geography, National Research Council.
Chester R. Longwell, Chairman, Philip B. King, Vice-Chairman.
Charles H. Behre, Walter H. Bucher, Eugene Callaghan, D. F. Hewett, G. Marshall Kay, Eleanora B. Knopf, A. I. Levorsen, T. S. Lovering, George R. Mansfield, Watson H. Monroe, J. T. Pardee, Ralph D. Reed, George W. Stose, W. T. Thom, Jr., A. C. Waters, Eldred D. Wilson, A. O. Woodford.

A NEW GEOLOGIC MAP OF THE UNITED STATES AND ADJACENT PARTS OF CANADA AND MEXICO

Geologic structure, as evidenced and interpreted by a combination of outcropping areas, bedrock, surface disturbance, and subsurface deformation, is indicated by colors, symbols, contours, and descriptive explanation. Igneous, metamorphic, and selected areas of sedimentary rock are mapped. Salt domes, crypto-Volcanic disturbances, and submarine contours are shown. The base map shows state boundaries, rivers, a pattern of cities, and 1-degree lines of latitude and longitude.

The scale is 1:2,500,000, or 1 inch equals 40 miles. Printed in 7 colors on 2 sheets, each about 40 x 50 inches. Full map size is about 80 x 50 inches.

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Analysis of oil field brines, cores, gas, oil and minerals, Field gas testing. R. H. Fash, Vice President; Long Distance 138, 823½ Monroe Street, Fort Worth, Texas.

BE SURE TO CHECK THE
TRADING POST SECTION
ON PAGE 55 OF THIS ISSUE

Gisholt Machine Company Buys International Detrola Firm

Gisholt Machine Company, Madison, Wis., has purchased the machine tool business of International Detrola Corporation, Elkhart, Ind.

Included in the properties which will be moved to Madison, under terms of the purchase agreement, are all of the Foster inventory, designs and drawings, patents, patterns, jigs and fixtures, backlog of orders, trade names and good will pertaining to Foster, Midland, and Libby Turret lathes, Fastermatic Platen and Turret Type Automatic lathes, and the entire line of Super Finishing machines. No buildings, installations, or similar equipment will be transferred.

Bonuses Distributed

The Lincoln Electric Company, Cleveland, Ohio, recently distributed in excess of $3 million in bonuses, ranging individually from $8 to about $25,000. As stated in the announcement, "The 12th annual bonus is the total earnings of the company after payment of the taxes and dividend, and the setting aside of the necessary seed money for the continuous prosperity of the company. It is divided among all workers who have been in the employ of the company for 45 days or more, as of December 15th, in proportion to each individual's contribution to the success of the company."

Koppers Negotiating to Buy Wailes Dove-Hermiston Stock

Koppers Company, Tar and Chemical Division, Pittsburgh, is negotiating for the capital stock of Wailes Dove-Hermiston Corporation, producers of bituminous protective coatings. Consideration is issuance by Koppers of 15,550 shares of its common stock and the payment of $100,000 in cash. General offices and the main factory of Wailes Dove-Hermiston are in Westfield, New Jersey, and there are other plants in East St. Louis, Illinois, and Houston.

Illinois Office Opened

The Oil Division of Claude Neon Lights, New York, announces opening of an office at 1708½ Broadway, Mattoon, Ill. The Mattoon office will have charge of the operation of oil properties in the Mattoon field, which the corporation owns. C. J. Simpson, Charleston, Ill., will be in charge at Mattoon headquarters, and Homer Luttrell, Effingham, Ill., will continue to handle exploration and drilling details.

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